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ABSTRACT

This report is the second of a series of semi-annual reports which the PLATO Services Organization publishes to keep users up to date on curricular development on the PLATO system. Materials are listed here under 65 general subject matter headings. Section II, the summary, presents a list of all subject areas in which lesson development on PLATO is in progress. It also provides a summary of completed materials available for student use. Whenever possible the number of instructional hours and the name of a person to contact for information is provided in the summary. Section III, details, contains information about the use of completed lessons. (CH)

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CERL Report X-41 July, 1974

No. 2

PLATO CURRICULAR MATERIALS

ELISABETH R. LYMAN

ED124141

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

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Computer-based Education Research Laboratory

University of Illinois Urbana Illinois

IR003529

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PLATO CURRICULAR MATERIALS

SECTION I

INTRODUCTION

The number of terminals on the network of the first large-scale PLATO computer-based educational system will pass the seven hundred mark this fall, 1974. The terminals are located at over one hundred sites in the United States and Canada. Just as the network rapidly expands, so does the development of curricular materials for this unique teaching system. Lesson writing is being attempted in approximately one hundred teaching areas and over two thousand finished lessons are now available representing sixty-five fields of study. In most cases the subject areas presenting the greatest wealth of material are those in which experimental lesson writing and student testing started several years ago on the earlier versions of the PLATO system: PLATO I (1960-1962), PLATO II (1962-1964), or PLATO III (1964-1973).

This report is the second of the series of semi-annual reports which the PLATO Services Organization at the Computer-based Education Laboratory at the University of Illinois is publishing to keep PLATO users and prospective users up-to-date on curricular developments on the large-scale system. The report supercedes CERL Report X-41, No. 1 published in February, 1974. The X-41 Reports provide information on lessons which are completed, have been used by students or have been adequately checked so that the author feels the lessons are workable and ready for student use.

Essentially the same format for reporting available material has been used in this second edition of X-41 as in the first. The 'summary' section, printed on green paper, presents a list of a) all the subject areas in which lesson development on PLATO is in progress and b) the completed topics by subject area, the number of instructional hours available in each topic whenever possible, and the name of a person to contact for information on each group of materials.

The 'details' section, printed on yellow paper, contains information about the use of the completed lessons. Topic numbers in the margin of the 'summary' section match the topic numbers in the 'details' section so that the location of details on a particular topic may be quickly found by thumbing through the report.

In the course of the development of the PLATO system, the system not only has been proving itself to be a powerful teaching tool, but also, as is very evident to users at any PLATO site, to be a fascinating recreational medium. In recognition of the potential of PLATO for recreational diversion, a section of this report is devoted to PLATO games. Since 'gaming' is used, of course, as an instructional device, an attempt has been made to include in the list of games those lessons which the authors have indicated are 'instructional games.'

Any completed lessons or games inadvertently omitted in this second edition of X-41, will, hopefully, be recorded in the third edition to appear in the early months of 1975.

SECTION II A. SUBJECT AREAS

Lesson development is in progress in the following curricular areas:
(Numbers indicate teaching levels of completed materials)*

Accountancy 3,4
Agricultural Economics
Agronomy 4
Business Administration 4,5
Cinema Studies 4
Classics
Communications 4
Computer Science 4
Counselling
Driver Training
Education
- Art Education 2,4
- Computer-Assisted Instruction
- Computer-Managed Instruction 4
- Educational Administration
- Educational Psycholcgy 4,5
- General Education 3,4
- Special Education

Engineering
- Aeronautical and Astronautical 4
- Electrical/Information 4
- General 4
- Materials 4
- Mechanical 4
- Theoretical and Applied Mechanics

English 2,4
Foreign Languages
- Akkadian
- Arabic
- Chinese 4
- Danish 2,4
- English as a Second Language 2,4
- French 2,4
- German 2,4
- Hebrew (Modern) 2,4
- Hindi
- Italian 2,4
- Korean
- Latin 2,4
- Russian 2,4
- Spanish 2,4
- Swahili
- Swedish 2,4
- Yoruban

Graphics
Information Science
Journalism
Law 5
Library Science 5
Linguistics 4
Literature
Mathematics 1,2,3,4

Medical and Health Sciences
- Medicine 5
- Nursing 3,4
- Pharmacy and Pharmacal Sciences 4,5
- Radiology
- Veterinary Medicine 4,5

Music 1,2,4
Natural Sciences
- Biochemistry 4,5
- Biology 2,4
- Biophysics and Physiology 4,5
- Botany 4
- Ecology
- Genetics 4,5
- Microbiology 4,5

Photography 2,3,4
Physical Education 4
Physical Sciences
- Acoustics 4
- Astronomy 2,4
- Chemistry 4
- Electron Microscopy
- Geology 2,4
- Meteorology
- Physics 4,5

Population Dynamics 2,4,5
Reading 1
Recreation and Park Administration
Reserve Officer Military Training
Rocketry
Social Sciences
- Anthropology
- Economics 4
- Geography 4
- History 4
- Philosophy
- Political Science 2,4
- Psychology 4,5
- Social Welfare 4
- Sociology 4

Speech and Hearing Sciences 3,4
Statistics 3,4,5
Urban Planning 4,5
Vocational Training
- Business Skills 3,4
- Computer Technology 3,4
- Electronic Training 3,4
- Machinist Training 3,4
- Micro Precision 3,4
- Pilot Training 3,4
- Retail Training 3,4
- Technical Drafting 3,4
- Vehicular Training 3,4

****

* 1 - Elementary 2 - Secondary 3 - Vocational 4 - College
5 - Professional

SECTION II

B. Summary of Materials Available for Student Use

ACCOUNTANCY 1

Financial Accounting Principles (30 hrs) 1a

- Income Statement
- Changes in the Balance Sheet Equation
- Classification
- Journalizing
- Closing Entries
- Worksheet
- General Journal Ledger
- Journal Entries with Numbered Accounts
- Special Journals
- Adjusting Entries
- Notes and Interest
- Bank Reconciliations
- Temporary Investments
- Accounts Receivable
- Terms of Sale
- Inventory
- Fixed Assets I: Acquisition and Depreciation
- Fixed Assets II: Depletion, Amortization and Disposal
- Accounting for Stockholders Equity

Managerial Accounting Principles (30 hrs) 1b

- Fund Flow
- Fund Statements
- Introduction to Cost Accounting
- Breakeven Analysis I and II
- Process Costing
- Job Order Costing
- Standard Costing I and II
- Operational Budgeting
- Planning and Control
- Financing
- Incremental Analysis
- Compound Interest
- Capital Budgeting

(Contact: James C. McKeown, 285 Commerce West, UIUC, Urbana, Illinois 61801, 217/333-4538)

2 AERONAUTICAL AND ASTRONAUTICAL ENGINEERING

2a General
Aerospace Engineering Games (.25+ hrs)

2b Solid Mechanics
Elementary Beam Theory
Design (3 hrs)
Displacements (1 hr)
Internal Forces (3 hrs)
Section Properties (1.5 hrs)
Sheer Stress (2 hrs)
Theory (2 hrs)
Elementary Torsion Theory
Design (1 hr)
Displacements (.5 hrs)
Internal Forces (3.5 hrs)
Section Properties (1.5 hrs)

2c Aircraft Design (12 hrs)

(Contact: H. S. Stilwell, 101 Transportation Building, UIUC, Urbana, Illinois 61801, 217/333-2650)

3 AGRONOMY

Soil Physics (open-ended, 2 to 15 hrs)
Soil Water

(Contact: Charles Boast, S-216 Turner Hall, UIUC, Urbana, Illinois 61801, 217/333-4370)

4 ART EDUCATION

+Self Instruction in Art (.3+ hrs)

(Contact: Guy Hubbard, School of Education, Art Education, Indiana University, Bloomington, Indiana 47401, 812/337-8549)

5 ASTRONOMY

Kepler's Laws of Planetary Motion (open-ended, 2-3 hrs)
Moon Phases and Almanac (open-ended, 2-3 hrs)
Stellar Constellations (open-ended, 2-3 hrs)

(Contact: Elaine Avner, 364 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-6500)

+ microfiche required

BIOCHEMISTRY 6

+ pH and Acid-Base Balance (1 hr)

(Contact: Dr. George Hody or Ms. T. Ngo, 605 S. Goodwin, UIUC, Urbana, Illinois 61801, 217/333-2507)

BIOLOGY 7

$Enzyme Action (1 hr) 7a
$Glycolysis, Krebs Cycle, Electron Transport Chain (1 hr) 7b
$Periodic Table of Elements (.5 hrs)
$Photosynthesis (.5 hrs)
$Respirometer Experiment (.5 hrs)
$The Atom (.5 hrs)
$Water Regulation in the Human Body (.75 hrs)
$Nerves, Stimulation, and Inhibitory Poisons (.75 hrs)
$Population Dynamics of the United States (open-ended, 1+ hrs)
$Scaler Experiment and Carbon-14 Dating (.75 hrs)
$Surface Area/Volume Problem in Living Systems (.5 hrs) 7c
$Meiosis (.75 hrs)
$Diffusion and Osmosis (.5 hrs)

(Contact: Richard Arsenty, 430 Natural History Building, UIUC, Urbana, Illinois 61801, 217/333-4851)

Biogeochemical Cycles; Carbon, Oxygen, etc. (2 hrs) 7d
$Classical Imprinting in Fowl (2 hrs)
$Comparative Serology as Evidence for Evolution (2 hrs)
Effect of pH, Temperature, etc. on Enzyme Activity (2 hrs)
Energy Relationships in Biological Systems (2 hrs)
$Genetic Drift (2 hrs)
$Natural Selection (2 hrs)
Predator-Prey Relationships (2 hrs)
$Principles of Heredity through Fruit Fly Simulation (3 hrs) 7f
$Simple Animal Behavior (2 hrs) 7d
$Simple Probability and Genetics (1 hr) 7e
$Social Behavior of Birds (2 hrs) 7d
+Ultrastructural Concept of the Cell (1 hr) 7g
Use of Taxonomic Keys (1 hr) 7h

(Contact: Gary Hyatt, PO Box 4348, Dept. of Biological Sciences, UICC, Chicago, Illinois 60680, 312/996-2797)

DNA-RNA Protein Synthesis (.5 hrs) 7i

(Contact: Paul Tenczar, 470 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7523)

Simple Chemistry (1 hr) 7j
Cell Structure and Function (1 hr)

(Contacts: Richard and Ronald Crockett, Kennedy-King College, 6800 S. Wentworth, Chicago, Illinois 60621, 312/962-3381)

+ microfiche required
$ student guide required

BIOLOGY -continued-

7k
Blood Typing (.5 hrs)
Meiosis (1 hr)
Mitosis (1 hr)
Hormonal Control of Menstrual Cycle

(Contact: Lee Porch, Kennedy-King College, 6800 S. Wentworth, Chicago, Illinois 60621, 312/962-3385)

7l
Mechanics of Cardiac Cycle (.7 hrs)

(Contact: Fay Bomer, Kennedy-King College, 6800 S. Wentworth, Chicago, Illinois 60621, 312/962-3384)

8 BIOPHYSICS AND PHYSIOLOGY

8a
Bioelectric Phenomena in Excitable Cells (3-6 hrs)
Electricity in Physiology
Neuron Excitability Experiment
Electrodiffusion

8b
Modelling (open-ended)
Hodgkin-Huxley Model of a Nerve Cell Membrane
Generalized Biophysical Modelling Program

(Contact: Lloyd Barr, 446 Burrill Hall, UIUC, Urbana, Illinois 61801, 217/333-7433)

8c
Compound Action Potential-Neuroscience (1 hr)
8d
+Female Reproductive Physiology (1 hr)
8e
+Male Reproductive Physiology (1 hr)

(Contact: Dr. George Hody or Ms. T. Ngo, 605 S. Goodwin, UIUC, Urbana, Illinois 61801, 217/333-2507)

) BOTANY

)a
Growth and Development (6 hrs)
Apical Dominance
Enzyme-Hormone Interactions
Flowering (Photoperiod)
Leaf Senescence
Plant Growth
Plant Response
Seeds

Photosynthesis (1 hr)

)b
Plant Genetics (with Population Laboratory) (2.5 hrs)

(Contact: Alan Haney, 289 Morrill Hall, UIUC, Urbana, Illinois 61801, 217/333-4396)

+ microfiche required

BUSINESS ADMINISTRATION 10

Management Science (12.5 hrs)
- Inventory Theory
- Introductory Game Theory
- Linear Decision Models
- Rational Decision Making

(Contact: Richard V. Evans, 383 Commerce West, UIUC, Urbana, Illinois 61801, 217/333-6511)

BUSINESS SKILLS 11

Business Skills Training
- Inventory Management for Supply Specialists (2 hrs)

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465, or Major Roger Grossel, AFHRL-TT Building 431, Lowry Air Force Base, Denver, Colorado 80230, 303/394-4385)

CHEMISTRY 12

Analytical
Quantitative Analysis
- Acid/Base Titration Curves (.5-1 hr) 12a
- Potentiometric Determination of Solubility Product Constants (1-1.5 hrs) 12b

(Contact: Ed Nagel, Neils Science Center, Valparaiso University, Valparaiso, Indiana 46383, 219/462-5111)

General
- $Gas Laws (1.25 hrs) 12c

(Contact: Milada Benca, Kennedy-King College, 6800 S. Wentworth, Chicago, Illinois 60621, 312/962-3421)

General (20 hrs) 12d
- Calculator and Graphing
- Chemical Formulas Practice
- Inorganic Nomenclature
- Inorganic Qualitative Analysis Simulation
- Kinetics
- Kinetic Molecular Theory
- Mass Spectra Illustration
- Nuclear Chemistry
- Octahedral Ligand Field Effect
- Oxidation and Reduction
- Quiz on Stoichiometry
- Review of Math Skills
- Use of the Slide Rule

(Contact: Robert Grandey, Parkland College, 2400 W. Bradley, Champaign, Illinois 61820, 217/351-2200)

$ student guide required

CHEMISTRY -continued-

General -continued-

12e
Nodes and Shapes of Atomic Orbitals (3 hrs)

(Contact: Harrison Shull, Chemistry Department, Indiana University, Bloomington, Indiana 47401, 812/337-8913)

12f
Metric System (.5 hrs)
Scientific Notation (.5 hrs)
Inorganic Nomenclature (1 hr)
Introduction to Atomic Theory (1 hr)
Molecular Formulas and Per Cent Composition (1 hr)
Solutions: Concentration (1 hr)
+Introduction to Acid-Base Titration (2 hrs)
Acid-Base Titration Experiment (.5 hrs)
Acids and Bases in Water (.5 hrs)
pH and Acid-Base Titration Curves (1 hr)
Problems on Concentration and Stoichiometry (.5 hrs)
Freezing Point Depression Experiment (1 hr)
Ionic and Covalent Bonding; Lewis Structures (1 hr)
Heats of Chemical Reactions; Hess's Law (1 hr)
Chemical Equilibrium Problems (1.5 hrs)

(Contact: Stanley Smith, 254 Roger Adams Laboratory, Box 46, UIUC, Urbana, Illinois 61801, 217/333-3839)

12g
Organic
Organic Nomenclature (.5 hrs)
Writing Structural Formulas (.5 hrs)
Bonding in Carbon Compounds (.2 hrs)
Optical Activity (1 hr)
Alkene Chemistry (.5 hrs)
Substitution and Elimination (1 hr)
Alcohol Chemistry (1 hr)
Additions to Carbonyl Groups (1 hr)
Reactions of Aldehydes and Ketones (1 hr)
Arene Chemistry (1 hr)
Synthesis of Aromatic Compounds (1 hr)
Introduction to NMR (1 hr)
Spin-Spin Coupling (.5 hrs)
+Interpretation of NMR Spectra (1 hr)
+Intrared Spectroscopy (1 hr)
Reactions Used in Qualitative Analysis (2 hrs)
Qualitative Organic Analysis (1 hr)
Purification by Crystallization (.5 hrs)
Aliphatic Synthesis (1 hr)
Carbohydrates (.5 hrs)

(Contact: Stanley Smith, 254 Roger Adams Laboratory, Box 46, UIUC, Urbana, Illinois 61801, 217/333-3839)

CHINESE 13

Elementary Chinese (6 hrs)

(Contact: Chin-Chuan Cheng, 4101 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1206)

CINEMA STUDIES 14

Experimenting with Cinema Studies (4 hrs)
- Bibliographies on Film and Directors
- Cinema Chronology
- Cinema Hardware
- Cinema Quiz
- Multiple Choice Questions with Mini-essay Answers
- Selected Student Papers

(Contact: Edwin Jahiel, 2114 Foreign Languages Building, UIUC, Urbana Illinois 61801, 217/333-1110)

COMMUNICATIONS 15

Radio-TV Management
- Broadcast Management Simulation (4.5 hrs)

(Contact: Donald P. Mullally, 119 Gregory Hall, UIUC, Urbana, Illinois 61801, 217/333-0850 or 333-1070)

COMPUTER MANAGED INSTRUCTION 16

Management of Study and Learning for Course in Elementary Economics (10 hrs)

Management of Study and Learning for Course in American History (5 hrs)

(Contact: Thomas Anderson, 226 Education, UIUC, Urbana, Illinois 61801, 217/333-2604)

COMPUTER SCIENCE 17

Lesson Sequencing, Writing and Evaluation (5 hrs) 17a
- Course Introduction
- Course Guide
- List of Lessons
- User Feedback
- On-Line Consultation
- Author Introduction
- Lesson Writing
- Common Code, etc.
- Author Communications
- Student Router
- Author Practice

COMPUTER SCIENCE -continued-

17a

General Computer Science Lessons (15-30 hrs)
- Introduction
- Algorithms
- Flow Charting
- Turing Machines
- Formal Computer Languages
- Epic 2000 Calculator
- Progressive War Game
- Drawing Language
- Boolean Expressions
- Remote Terminals
- Manual for GRAFIX
- CalComp Plotter
- PLATO Hardware and Software

Information Processing (5-10 hrs)
- Sorting
- Binary Searching
- Information Structures and Informations Structures Drills
- File Processing

PL/1 Language (25 hrs)
- Introduction
- Data Types
- Operators
- Arithmetic
- String Operations
- IF - THEN, DO Groups
- DO Loops
- Introduction to Arrays
- Advanced Arrays
- Procedures
- LIST Input/Output
- EDIT Input/Output
- Drill on EDIT I/O
- Recursive Programming
- Compiler

FORTRAN Language (10-20 hrs)
- Introduction
- Arithmetic
- IF Statements
- DO Statements
- Subprograms
- Introduction to Arrays
- Advanced Arrays
- FORMAT Statements
- Character Handling
- Compiler

Machine and Assembler Language and Computer Simulators (3-6 hrs)
- A Simple Computer
- Machine Language
- PDP8/L Simulator

COMPUTER SCIENCE -continued-

BASIC Language (3-6 hrs) 17a
- Introduction
- Advanced
- Compiler

Other Languages and Language Independent Programming (15-30 hrs)
- SNOBOL4
- COBOL Compiler
- APL Compiler
- Drawing Language
- DO-Type Loops
- Begin Blocks
- Decision Tables
- Recursion
- Structured Programs
- Robot Mini-Language
- Stocks Mini-Language
- Backtrack Algorithm
- Mini-Language Editor Compiler

Numerical Analysis (8-15 hrs)
- Numerical Integration
- Linear Equations
- Non-Linear Equations
- Least Squares
- Linear Programming
- Monte Carlo
- Spline Approximation

Simulation (3-6 hrs)
- Discrete Simulation
- Simulation Games
- Traffic Simulation

(Contact: George Friedman, Jr., 128 Digital Computer Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7505)

Filing System (open-ended) 17b

Compilers (open-ended) 17c
- BASIC Compiler/Interpreter
- A LOGO-like Extensible Language 17d
- FORTRAN Compiler/Interpreter

Index to Set of Lessons with Communication Facility

(Contact: John W. Brown, Department of Mathematics, UIUC, Urbana, Illinois 61801, 217/333-9317)

COMPUTER SCIENCE -continued-

17e $PLATO TUTOR Language Training Lessons (6-40 hrs)
Computer Background for New PLATO Authors
TUTOR, an Interactive Reference for New Authors
Tests on Basic TUTOR Commands
Author Mode and Student Mode Solution to the Basic TUTOR Programming Problems
States in TUTOR, the Order of Execution of TUTOR Commands

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465)

17f Data Structures (1 hr)

(Contact: Stuart C. Shapiro, Computer Science Department, 101 Lindley Hall, Indiana University, Bloomington, Indiana 47401, 812/337-[illegible]33)

18 DANISH

+Syntax (2 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

19 ECONOMICS

19a General Equilibrium Theory in an Exchange Economy (1.5 hrs)
Consumer Behavior
Multiple Market Equilibrium Simulation

(Contact: Robert Gillespie, 450 Commerce West, UIUC, Urbana, Illinois 61801, 217/333-4586)

19b $#Introductory Economics Concepts-Macroeconomics (2 hrs)

(Contact: Donald Paden, 225 David Kinley Hall, UIUC, Urbana Illinois 61801, 217/333-3050)

See also: COMPUTER MANAGED INSTRUCTION

$ student guide required
+ microfiche required
# touch panel required

EDUCATION 20

Mathematics 20a

$Secondary and Continuing Education
Classroom Simulations Focusing upon Teaching and Questioning Strategies (5 hrs)
Modelling and Simulation Activities for High School Students (3 hrs)
Sample High School Mathematics Programs (5 hrs)

(Contact: Janice Flake, Mathematics Education Dept. Florida State University, Tallahassee, Florida 32306, 904/644-1833) (lessons developed at UIUC)

Physical Education 20b

Physical Education Curriculum Planning - A Simulation (2 hrs)

(Contact: Karen Fry, 117 Freer Gymnasium, UIUC, Urbana, Illinois 61801, 217/359-4942)

Psychology 20c

Effective Feedback Skills for Company Commanders (6 hrs)

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465, or Arthur Blaiwas, Naval Training Equipment Center, N-215, Orlando, Florida 32813, 305/646-5130)

Science 20d

Teaching for Mastery in Science (2 hrs)

(Contact: James R. Okey, Education 202, Indiana University, Bloomington, Indiana 47401, 812/337-3468)

Test Construction (8 hrs) 20e

Supervision of Practice Exercise
Characteristics of Testing
Purposes of Testing
Types of Tests
Test Administration
Test Analysis
Test Analyzer and Math Drills
Test Item Analysis

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465, or Frank Dare, U.S. Army Ordinance Center and School, Aberdeen Proving Ground, Maryland 21005, 301/278-5327)

$ student guide required

21 ELECTRICAL/INFORMATION ENGINEERING

21a ¢$+Computer-Guided Experimentation
Description of Computer-Guided Experimentation Research
Computer-Guided Experimentation Research Routines
Computer-Guided Experimentation Lessons (4-12 hrs)
Introductions to Computer-Guided Experimentation
The Oscilloscope
The Auido Oscillator
The Function Generator
The DC Supply
The Vacuum Tube Voltmeter
Transients
Impedance
Two-Part Networks

(Contact: James P. Neal, 361 Electrical Engineering Building, UIUC, Urbana, Illinois 61801, 217/333-4351)

21b Network Analysis (open-ended, 2-4 hrs)
Parallel RLC Circuit Analysis
Introduction to Sinusoidal Functions
DC and AC Steady State Network Simulator
RL, RC, With Step-function Sources

(Contact: Paul Weston, 329D Electrical Engineering Building, UIUC, Urbana, Illinois 61801, 217/333-4694)

21c $Basic Electronics
Diode Electronics (1 hr)
Semi-Conductor Physics (.75 hrs)
Transistor Bias (1.5 hrs)
Transistor Amplifiers (1.5-2 hrs)

(Contact: R. Arzbaecher, Information Engineering Department, UICC, Chicago, Illinois 60680, 312/996-2311)

+ microfiche required
$ lesson guide available
¢ auxiliary equipment required

ELECTRONIC TRAINING 22

Electronic Training (7 hrs) 22a
- Electronic Symbols
- Parallel Circuits
- Series Parallel Circuits
- Ohm's Law
- DC Power
- Series Circuits
- ¢Trouble Shooting

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465, or Capt. Larry Hinkle, CTS Project, ATSN-CTS, U.S. Army Signal Center and School, Building 291, Fort Monmouth, N.J. 07703, 201/532-1674)

Simpson Graphics Multimeter (1 hr) 22b
PSM Multimeter (A through L) (1 hr)
Oscilloscope Training (1 hr)

(Contact: Dr. John Ford, Navy Personnel Research Development Center, Code 9041, San Diego, California 92152, 714/225-7194, or Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465)

¢ auxiliary equipment required

23 ENGLISH

(General Contact: Pauline Jordan, English Coordinator, Community College Project, 201d Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7450)

23a Usage/Grammar

Basic English (20 hrs)
- Parts of Speech
- Introduction to Sentences
- Pronouns
- Double Negatives
- Singulars, Plurals, and Possessives
- Period and Comma
- Semicolon and Comma
- Verbs
  - Introduction to Verbs
  - Irregular Verbs
  - Confusing Verbs
  - Horrible Test on Confusing Verbs
  - Copulative Verbs
  - Passive Verbs
- Dangling Participles and Misplaced Modifiers
- Parallelism

(Contact: Sally Wallace, Parkland College, 2400 West Bradley, Champaign, Illinois 61820, 217/351-2307)

23b $Intermediate English (20 hrs)

Subjects and Objects
- Common and Proper Nouns
- Pronouns
- Subjects and Predicates
- Noun Clauses
- Infinitives
- Gerunds
- Direct Objects

Verbs
- Introduction to Verbs
- Irregular Verbs (3 levels)
- Subjunctive
- Four Advanced Verb Tenses

Types of Sentences
- Compound
- Complex (with Adjective Clauses)

Modifiers
- Prepositions and Phrases

(Contact: Doris Barr, Parkland College, 2400 W. Bradley, Champaign, Illinois 61820, 217/351-2200)

23c $Transformational Grammar (3 hrs)
- Recognizing Sentences
- Identifying Subjects and Predicates
- Parts of Speech: Noun in Noun Phrase; Verb in Verb Phrase; Adjective

(Contact: Elise Spencer, Dawson Skills Center, 3901 S. State, Chicago, Illinois 60609, 312-624-7300X42)

$ student guide required

ENGLISH -continued-

Usage/Grammar 23d

$Review English
Plural Form of Nouns (1 hr)
Possessives (1 hr)
Sentence Recognition (1 hr)
Homonyms (its, their, your) (1 hr)

(Contact: Barbara Geaither, Malcolm X College, 1900 W. Van Buren, Chicago, Illinois 60612, 312/942-3012)

$Subject-Verb Agreement (1 hr) 23e

(Contact: Errol Magidson, Kennedy-King College, 6800 S. Wentworth, Chicago, Illinois 60609, 312/962-3446)

$Diagnostic Testing (6 hrs)
Capitalization
Spelling
Usage and Sentence Sense
Confusing Word Pairs

(Contacts: Jim Kraatz, 262 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-2375, or Errol Magidson, Kennedy-King College, 6800 S. Wentworth, Chicago, Illinois 60609, 312/962-3446)

$English Drills (3 hrs) 23f
Correcting Error in Paragraphs
Spelling Exercise

(Contact: Mitsuru Yamada, Malcolm X College, 1900 W. Van Buren, Chicago, Illinois 60612, 312/942-3068)

$Literature
Poetry
Rhyme (.5 hrs) 23g

(Contact: Joe Vojacek, Malcolm X College, 1900 W. Van Buren, Chicago, Illinois 60612, 312/942-3000)

"Portrait" e e cummings (1 hr) 23h

$Reading (3 hrs)
Implied Meaning
Fact and Opinion
Main Idea

(Contact: Pauline Jordan, 201D Engineering Research Laborabory, UIUC, Urbana, Illinois 61801, 217/333-7450)

$ student guide required for most courses

ENGLISH -continued-

23i $Research Papers (2 hrs)
Bibliography
Footnoting Format

(Contact: Bob Bator, Olive-Harvey College, 1001 South Woodlawn Ave., Chicago, Illinois 60628, 312/568-3700)

24 ENGLISH AS A SECOND LANGUAGE

24a Review of English Grammar (32 hrs)

(Contact: Roberta Stock, Language Laboratory, Foreign Language Building, UIUC, 217/333-1719)

24b Syntax (8 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

25 FOREIGN LANGUAGES - GENERAL

Polyglot (12 Languages) (24 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

26 FRENCH

26a Beginning French
@+Elements for Self-Expression in French (100 hrs)
Phonology
Spelling-Reading
Morphology-Syntax
26b Remedial Lessons (3 to several hrs)
26c @Applied Linguistics (10 hrs)
26d Culture and Civilization (4 hrs)
+Geography of France
Geology of France
#Stylistic Diversion
+Subway

(Contact: Fernand Marty, G70C Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-9776)

\+ microfiche required
\# touch panel required
@ audio response unit required
$ student guide required

FRENCH -continued-

Phonetics 26e
Orthoépie Française (38 hrs)
Review of Orthoépie (10 hrs)
Minimal Pairs (8 hrs)
Intonation and Transcription (16 hrs)
Terminology (2 hrs) 26f
+Syntax (12 hrs)
Vocabulary (28 hrs) 26g

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

GENETICS 27

+Chromosome Karyotyping (1 hr) 27a
+Genetic Counselling (+ hrs) 27b
+Genetic Risk Estimates (1 hr) 27c

(Contact: Dr. George Hody or Ms. T. Ngo, 605 S. Goodwin, UIUC Urbana, Illinois 61801, 217/333-2507)

Quantitative Genetics (1-2 hrs) 27d
Population Genetics (2-3 hrs) 27e

(Contact: Michael Grossman, 215 Animal Science Laboratory, UIUC, Urbana, Illinois 61801, 217/333-2626)

Plant Genetics (with Population Laboratory) (2.5 hrs) 27f

(Contact: Alan Haney, 289 Morrill Hall, UIUC, Urbana, Illinois 61801, 217/333-4396)

Chromosomal Crossing Over in Diploid Organisms (1 hr) 27g

(Contact: Gary Hyatt, PO Box 4348, Department of Biological Sciences, UICC, Chicago, Illinois 60680, 312/996-2797)

GEOGRAPHY 28

Physical
+Geography of France (1 hr) 28a

(Contact: F. Marty, G70c Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-9776)

Social/Cultural 28b
Room Geography (.25 hrs)
Spatial Diffusion (1+ hrs)

(Contact: Ivan M. Pour, Department of Urban Planning, 909 W. Nevada, UIUC, Urbana, Illinois 61801, 217/333-3891)

+ microfiche required

29 GEOLOGY

Geology of France (1 hr)

(Contact: Bruce Mainous, 2090 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

30 GERMAN

30a +Syntax (12 hrs)
30b Vocabulary (44 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

30c Vocabulary and Reading Skills (8 hrs)

(Contact: David Weible, German Department, UICC, Chicago, Illinois 60680, 312/996-5528)

31 HEBREW (MODERN)

@Elementary Modern Hebrew (28 hrs)

(Contact: Roberta Stock, Language Laboratory, Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

32 HISTORY

See: COMPUTER MANAGED INSTRUCTION

33 ITALIAN

+Syntax (4 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

34 LATIN

Beginning Latin (80 hrs)
Latin Composition (31 hrs)
Vergil's Aeneid (32 hrs)

(Contact: Richard Scanlan, 4072 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1008)

+ microfiche required
@ audio response unit required

LAW 35

Contract Law (2 hrs) 35a
Government Regulation (3 hrs) 35b
Insurance Law (11 hrs) 35c
Introduction to Legal Research (1 hr) 35d
Patent Law (2 hrs) 35e
Property Law (2 hrs) 35f

(Contact: Peter Maggs, 141 Law Building, UIUC, Urbana, Illinois 61801, 217/333-6711)

LIBRARY SCIENCE 36

Cataloging and Classification (5 hrs)
- Bibliographic Data Identification
- File Organization-Truncated Search Keys
- Serial Cataloging
- Subject Heading Principles and Marc Tags
- Titles, Entries and Corporate Bodies

(Contact: Kathryn Luther Henderson, 327 Library, UIUC, Urbana, Illinois 61801, 217/333-6191)

LINGUISTICS 37

Computational Linguistics (7 hrs) 37a
Introduction to General Phonetics (8 hrs)
- Mid-Sagital View of the Speech Tract
- Air-Stream Mechanisms
- Consonants
- Vowels
- Suprasegmentals
- Sine Waves and Vowel Formants
- Distinctive Features

(Contact: Chin-Chuan Cheng, 4101 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1206)

Introductory Transformational Grammar (10 hrs) 37b
- Introduction to Linguistics
- Phonetics and Phonology
- Morphology
- Syntax
- Relative Grammaticality and Idiolect
- Syntactic Deviancies of Deaf Students

(Contact: Stephen Quigley, Children's Research Center, UIUC, Urbana, Illinois 61801, 217/333-1850)

8

MACHINIST TRAINING

8a

Machinist Training Course (29 hrs)

- Conversion of Metric to English
- Solution of Right Triangles
- Trouble Shooting Fuel Systems
- Ordnance - Sergeant Game

8b

- Grinding Wheels
- Identification of Tool Bits
- Milling Machines
- Milling Machine Speed Feeds and Coolants

8c

- Indexing
- Introduction to Tapers
- Keys and Keyways

8d

- Introduction to Threads
- Ratio and Proportion
- Thread Forms

8e

- Lathe Speed Feeds and Depth of Cut
- Lathe Toolbits and Tool Holders
- Unified and American Threads

8f

- MI Drills

8g

- Reading the Micrometer
- Spur Gears
- Square and Acme Threads
- Verniers

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465, or Frank Dare, U.S. Army Ordinance Center and School, Aberdeen Proving Ground, Maryland 21005, 301/278-5327)

9

MATERIALS ENGINEERING

Tension Tests

(Contact: Graham Brown, Room 221, SES, UICC, Chicago, Illinois 60680, 312/996-3428)

MATHEMATICS 40

$+#@Elementary (60-115 hrs) 40a

- Whole Number Strand
  - Adding Dots
  - Rubber Stamp
  - Arrays
  - Lines and Crossing Points
  - Parking Lot
  - Speedway
  - How the West was One + Three x Four
  - All About PLATO
- Fractions Strand
  - Share a Candy Bar
  - Cut and Paint
  - Cuisenaire Rods
  - Pie Stand
  - Sticks 'n String
  - Skywriting and Spider's Web
  - Darts
  - Monsters
  - Torpedo
  - Animal Bagger
- Graphing Strand
  - Graphing
    - Tic Tac Toe
    - Battleship
    - How to Plot Points
    - Checkup for Tic Tac Toe
    - Graphing Linear Equations
    - Slope Checkup
    - Intercept Checkup
    - Experimenting with Linear Graphs
    - Problems with Linear Graphs
    - Graphing Parabolas
    - Experimenting with Parabolas
    - Graphing Ellipses
    - Experimenting with Ellipses
    - Easy Graphing
    - How Do You Feel About Today's Work?

\+ microfiche required for some lessons
\# touch panel required for some lessons
@ audio response unit required for some lessons
$ lesson guides available

MATHEMATICS -continued-

40a

$+#@Elementary -continued-
Graphing Strand -continued-
Functions
Guess My Rule
Guess My Rule Checkup
Finite Differences
Finite Differences Checkup
Shuttle Puzzle
Exponents
Exponents Checkup
Tower Puzzle
Signed Numbers
Introduction to Signed Numbers
Crossed Number Lines
The Egg Dropper
Postman Stories
Cricket Catching
Variables
Boxes and Hexes
True, False and Open Sentences
First Lesson in Open Sentences
Second Lesson in Open Sentences
Rule for Substitution
Quadratics

(Contact: PLATO Elementary Mathematics Curriculum Group, 202 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7410)

\+ microfiche required for some lessons
\# touch panel required for some lessons
@ audio response unit required for some lessons
$ lesson guides available

MATHEMATICS -continued-

High School

Sample Beginning Algebra Lessons (1 hr) 40b

(Contact: Kenneth Travers, 375 Education Building, UIUC, Urbana, Illinois 61801, 217/333-3598)

Modelling and Simulation (3 hrs) 40c

(Contact: Janice Flake, Mathematics Education Dept. Florida State University, Tallahassee, Florida 32306, 904/644-1833)

Community College

Basic Arithmetic

$Signed Numbers and the Number Line 40d
- Thermometer + Sea Level
- Number Line
- Addition and Subtraction on the Number Line
- Multiplication - Running
- Logic, Linear Patterns
- Bank Stories

$Ratios and Fractions 40e
- Introduction to Fractions
- Fractions on the Number Line
- Graphic Experiments with Fractions
- Reducing Fractions (open-ended) 40f
- Summary Exercises
- Introduction to Ratios 40g

$Decimals (6 hrs) 40h
- Decimal Skills: Introduction
- Reading and Writing Decimals
- Adding and Subtracting Decimals
- Multiplying and Dividing Decimals
- Rounding and Comparing Decimals
- Keeping a Balanced Checkbook

Percent (3-4 hrs) 40i
- Introduction to Percents
- Percent-Decimal-Fraction Conversions
- Word Problems with Percents

$Denominate Numbers 40j
- Pre/Post Tests
- Exercises

$Square Roots 40k

Algebra and Graphing 40l

$Multiplying and Factoring Algebraic Expressions
- Binomial Products (1.5 hrs)
- Factoring Quadratic Polynomials (open-ended) 40m

$Linear Equations and Inequalities in One Unknown (open-ended) 40n
- Solving Linear Equations with Fractions - Strategy
- Solving Linear Equations with Fractions - Solutions
- Graphing Linear Inequalities 40o
- Word Problems with Linear Equations 40p

$ lesson guide available

MATHEMATICS -continued-

Algebra and Graphing -continued-

40q Plotting Points in the Plane (open-ended)
- Tic Tac Toe
- Battleship
- Plotting Points

40r $Linear Equations in Two Unknowns (open-ended)
- Graphing a Straight Line
- Finding the Equation of a Straight Line
- Intercept
- Slope

40s $Quadratic Equations (open-ended)
- Solving Quadratic Equations by Factoring

40t Systems of Simultaneous Equations (3 hrs)
- Basic Introduction to Systems of Equations
- Introduction to 2 x 2 Systems
- Independence of Systems
- Solving by Graphing
- Solving by Substitution
- Solving by Adding and Subtracting
- Pre/Post Tests

40u $Function Plotters (open-ended)
- y = f(x)
- Polar Equations
- Parametric Equations
- Implicit Function Plotter

40v Basic Geometry (4-5 hrs)
- Line Segments
- Congruence
- Triangles and Quadrilaterals

Trigonometry and Measurement

40w Trigonometry
- Similar Triangles
- Angle Measure

40x
- Trigonometric Functions

40y
- Word Problems with Trigonometry

40z $Slide Rule
- Scientific Notation
- Reading the Slide Rule
- Estimation
- Multiplication
- Division

(Contact: Louis DiBello, 201A Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-4405)

$ lesson guide available

MATHEMATICS -continued-

Community College -continued-

Sine Ratio Lesson (with pre-test and post-test) (2 hrs) 40aa
Mathematics Review (Rules, Test Practice Problems in Powers of Ten and Formula Solving) (2 hrs)

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, Urbana, Illinois 61801, 217/333-7465, or Dr. John Ford, Navy Personnel Research Development Center, Code 9041, San Diego, California 92152, 714/225-7194)

University

Linear Algebra
- Inequalities 40ab
- Introduction to Vectors 40ac
- Introduction to Matrices 40ac$_1$
- Matrix Calculator 40ad
- Solving a System of Linear Equations 40ae

Differential Calculus
- Defining the Tangent to a Curve 40af
- How a Tangent Approximates a Curve 40ag
- Minimum/Maximum Problems 40ah
- Newton's Method 40ai
- Practicing Differentiation (open-ended) 40aj

Integral Calculus
- Rules of Integration 40ak
- Volumes of Solids of Revolution 40al
- Exercising Indefinite Integration (open-ended) 40am

Analytic Geometry
- General Curve Drawing (1+ hrs) 40an
- Plotting Problems Laboratory (1+ hrs) 40ao
- Surface Drawing (1+ hrs) 40ap

Miscellaneous
- The Function: $a \sin(b(x+c))$ 40aq
- The Function: $\ln x$ 40ar
- The Constant π 40as

(Contact: John W. Brown, Department of Mathematics, UIUC, Urbana, Illinois 61801, 217/333-9317)

MECHANICAL ENGINEERING 41

Basics of Cryogenics (1 hr)

(Contact: John Chato, 132 Mechanical Engineering Building, UIUC, Urbana, Illinois 61801, 217/333-0623)

42 MEDICINE

42a +Chromosome Karyotyping (1 hr)
42b Compound Action Potential - Neuroscience (1 hr)
42c +Female Reproductive Physiology (1 hr)
42d +Male Reproductive Physiology (1 hr)
42e +Genetic Counselling (1+ hrs)
42f Genetic Risk Estimates (1+ hrs)
42g +Gram Negative Rods (1 hr)
42h +Gram Positive Cocci (1.5 hrs)
42i +pH and Acid-Base Balance (1 hr)
42j +#Physician Self-Assessment (.3 hrs)
42k +Schematic Approach to Heart Disease (1.5 hrs)

(Contact: Dr. George Hody or Ms. T. Ngo, 605 S. Goodwin, UIUC, Urbana, Illinois 61801, 217/333-2507)

42l ABO Blood Typing (1 hr)

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465, or Capt. R. Mike Kimball, Sheppard Air Force Base, School of Health Care Sciences, Building 1900, Wichita Falls, Texas 76311, 817/851-2710)

42m Patient Education
Diabetes (2-3 hrs)

(Contact: Dr. Lois Langdon, Regional Health Research Center, 1404 W. University, Urbana, Illinois 61801, 217/367-0076)

43 MICROBIOLOGY

Cell Growth
43a Cell Growth Rates (3 hrs)

(Contact: Rosanne Francis, 563 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7452)

43b +Gram Negative Rods (1 hr)
43c +Gram Positive Cocci (1.5 hrs)

(Contact: Dr. George Hody or Ms. T. Ngo, 605 S. Goodwin, UIUC, Urbana, Illinois 61801, 217/333-2507)

43d $Serial Dilution Problems (1 hr)

(Contact: Gary Hyatt, PO Box 4348, Department of Biological Sciences, UICC, Chicago, Illinois 60680, 312/996-2797)

\+ microfiche required
$ student guide required
\# touch panel required

MUSIC 44

Conducting and Score Reading
@Music Score Reading (.5 hrs) 44a

@Elementary Music Fundamentals (3 hrs) 44b
Complete the Measure
Key Identification Game
Solimization and Kodaly Hand Signals
Note Reading
Time Signatures

Elementary School Music
Elementary String Instruction (.3-.8 hrs) 44c
Music Baseball Game 44d

General Music
Music Game: 5 x 7 (.3 hrs) 44e

Harmony (.3 hrs) 44f

Instrumental Music Instructional Methods (5-8 hrs) 44g
Flute, Oboe, Clarinet, Saxophone, Bassoon, Trumpet, Horn, Trombone, Tuba, Euphonium

Music Student Teaching (1.5 hrs) 44h
Critical Incidents in Teaching of Music
Microteaching in Music

@Supplementary Instrument Instruction 44i
Brass Instruments - Trumpet (.6 hrs per session)
Woodwind Instruments - Clarinet (.6-1.25 hrs per session)
Woodwind Instruments - Saxophone (.5 hrs per session)

Percussion Terminology (3 hrs) 44j
Membranophones
Idiophones

(Contact: David Peters, 114 Architecture Building, UIUC, Urbana, Illinois 61801, 217/333-6064)

Tests and Measurements
Tests and Measurements in Music (10 hrs) 44k

(Contact: Richard Colwell, 3006 Music Building, UIUC, Urbana, Illinois 61801, 217/333-3565)

NURSING 45

Mathematics for Nurses
Diagnostic Mathematics Test for Nurses (1 hr) 45a
Mathematics Practice for Nursing Education (.5 hrs) 45b
Mathematics of Drugs and Solutions: Metric and Apothecaries' System (1 hr) 45c

@ audio response unit required

NURSING -continued-

45d Maternal Child Health
45e +Fetal Circulation (2 hrs)
+Postpartum Involution (2 hrs)

Pharmacology for Nurses
45f Principles of Drug Therapy (2 hrs)

(Contact: Pat Tymchyshyn, Parkland College, 2400 West Bradley, Champaign, Illinois 61820, 217/351-2292)

46 PHARMACY AND PHARMACAL SCIENCES

General
46a Router for Pharmacy Students and Author Demonstration Index

Physical Pharmacy
46b Prediction of Drug Solubility (.75 hrs)
46c Effect of pH on Partition Coefficient (1 hr)
46d Review of Graphing (.75 hrs)
46e Kinetics of Aspirin Hydrolysis (.75 hrs)

Medicinal Chemistry
46f Structure-Activity Relationships (.5 hrs)

(Contact: Steve R. Deiss, Purdue University School of Pharmacy and Pharmacal Sciences, West LaFayette, Indiana 47907, 317/749-2204)

PHOTOGRAPHY

47 $Basic Camera Operation (1 hr)

(Contact: James Evans, 58 Mumford Hall, UIUC, Urbana, Illinois 61801, 217/333-4785)

\+ microfiche required
$ student guide required

PHYSICS 48

General 'Service' Lessons (open-ended) 48a
- Talking to PLATO
- Calculator and f(x) Plotter
- Root Finder, f(x) = 0
- Fourier Synthesis and Analysis
- GRAFIT Computer Programming Facility
- Mini-Calculator
- Numerical Integration and Least Squares
- Plotters - $r(\theta)$, f(x,y), log, f(t) vs g(t)
- Matrix Routines
- Three-Dimensional Plotter and Projections

(Contact: James H. Smith, 215 Physics Building, UIUC, Urbana, Illinois 61801, 217/333-4227)

Intermediate Light (2 hrs) 48b
- Ray Tracing Through a Single Spherical Refracting Surface
- Optical Path Length as a Function of Displacement

(Contact: David C. Sutton, 329 Physics Building, UIUC, Urbana, Illinois 61801, 217/333-4359)

Classical Mechanics (15+ hrs) 48c
- Kinematics
  - Introduction to Vectors
  - Vector Addition and Subtraction
  - Relative Motion (River and Boat Problem)
  - One-Dimensional Kinematics I and II
  - Two-Dimensional Kinematics
  - Plots of Two-Dimensional Motion
  - Satellite Orbits
- Dynamics
  - Conservation of Momentum
  - Kinetic Energy in Collisions
  - Collision Problems
  - Center-of-Mass Game
  - Free-body Diagrams (without Rotation)
  - Work and Kinetic Energy
  - Introduction to Potential Energy
- Rotational Dynamics
  - Radian Measure
  - Torque and Angular Momentum
  - Vector Cross Product (and Torque)
  - Moment of Inertia and Kinetic Energy of Rotation
  - Free-body Diagrams with Rotation
- Miscellaneous
  - Games

(Contact: Bruce Sherwood, 272 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-6210)

PHYSICS -continued-

Classical Mechanics

48d

Graphical Kinematics (3-4 hrs)
- Part I: Differentiation
- Part II: Integration

(Contact: E.B. McNeil, Physics Department, UICC, Chicago, Illinois 60680, 312/996-3416)

48e

Electricity and Magnetism

Elementary
- Charge Game (.5 hrs)
- RL, RC, RLC Circuits - Current vs Time

Advanced
- Laplace's Equation

48f

Waves, Sound, Optics, and Modern Physics (25+ hrs)

Wave Phenomena
- Travelling Waves and the Wave Equation
- Vibrating String Experiment
- Shock Waves from an Airplane
- Addition of Waves: $\cos(k_1 x) + (k_2 x)$, etc.
- Resonances in Pipes plus an Experiment

E-M Radiation and Physical Optics
- Polarizers
- Doppler Effect
- Slit Interference and Diffraction
- Phase (Vector) Diagrams plus a Quiz
- Spectroscope Apparatus Experiment

Geometric Optics
- Snell's Law: Includes 2 Games
- Thin Lenses: Ray Tracing Exercises
- Plane Mirrors: Graphical Exercises
- Spherical Mirrors: Numerical Exercises
- Signs and Ray Diagrams: Mirrors, Lenses, Surfaces
- Homework Problems
- Refracting Plane Surface: Ray Diagrams

Quantum Mechanics - Elementary
- Plots of Wave Packets
- Heisenberg Uncertainty Principle
- Infinite Square-Well Potentials
- Finite Potential Wells and Barriers
- Exercises with Potential Wells
- Atomic Quantum Numbers: n,l,m,s
- Nuclear Decay Processes, Half-Life
- Vibrations/Rotations in Diatomic Molecules
- Nuclear Reactions: alpha, beta decays

Review Questions
- Multiple Choice Questions from 1972-1973 Hourly Exams
- Quantum Mechanics Problems from 1973-1974 Hourly Exams

(Contact: Carol D. Bennett, 267 Physics Building, UIUC, Urbana, Illinois 61801, 217/333-3763)

PHYSICS -continued-

Elementary Nuclear Physics
Subnuclear Particles, Conservation Laws, Reactions (1.5 hrs) 48g

(Contact: Don Shirer, 125 Neils Science Center, Valparaiso University, Valparaiso, Indiana 46383, 219/426-5111X210)

Quantum Mechanics - Intermediate and Advanced (10+ hrs) 48h
Guided Exercises
Addition of Angular Momentum
Boundary Conditions for Step Potential
Matrix Algebra Review
Phase and Group Velocity
Guided Self-Consistent Calculation
Helium Atom - Electron Potential and Wave Function
Wave Functions
Infinite Square-Well Potentials
One-Dimension Wells and Barrier Potentials
Radial Schrödinger Equation; Phase Shifts

(Contact: Carol D. Bennett, 267 Physics Building, UIUC, Urbana, Illinois 61801, 217/333-3763)

PILOT TRAINING 49

Primary Training (10+ hrs)
Introduction to Flying
Pre-flight Planning
Collision Avoidance
VOR Usage Tests
Area Navigation
Instrument Landing Systems
Private Pilot Tests
Commercial Pilot Skills
Holding Pattern Flying
Advanced Displays

(Contact: Stanley Trollip, Aviation Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-3162)

POLITICAL SCIENCE 50

Congressional Candidates (.5 hrs)
Voting Behavior and Concepts (.5 hrs)
Teacher Union Bargaining (.5 hrs)

(Contact: Donald Emerick, 565 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 271/333-7452)

51 POPULATION DYNAMICS

$For Over 120 Countries and Regions
General Demography
Demand for Energy
Demand for Food
Economic Development
Educational Costs and Enrollment
Female Dominant Two Sex Model
General Demography Models
Labor Force Analysis
Construction of Life Tables
Population History
Population Lessons
Normal Distributions
Income Distributions
Interface to Hard Copy Output

(Contact: Paul Handler, 57 Coordinated Science Laboratory, UIUC, Urbana, Illinois 61801, 217/333-3827)

52 PSYCHOLOGY

52a
Descriptive Statistics (14 hrs)
Tests and Measurements (4 hrs)

52b
Motivational Control System (1 hr)
Neural Network Demonstration (2 hrs)
Psychology Experiments - Short Term Memory Experiment (1 hr)

52c
Social Psychology (6 hrs)
Prisoner's Dilemma Explanation and Interactive Demonstration
Dissonance vs Self-Perception Theory
Deutsh and Krass Trucking Game
Asch Conformity Study
Personal Space

(Contact: Jerry L. Cohen, 219D Psychology Building, UIUC, Urbana, Illinois 61801, 217/333-2578)

52d
Operant-Learning (open-ended, 5-6 hrs)

(Contact: R. A. Avner, 350 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-6500X20)

$ user guide available

READING 53

+#@Instructional materials are in conceptual areas which are modular in structure, each activity designed to require no more than 15 minutes (average student completion time about 8 minutes). Most modules are 'free-standing.' (30 hrs)

Operational Instruction
Concept of 'left' and 'right'
Concept of 'under'
Visual Discrimination
    Dissimilar Forms
    Similar Forms
    Tracing Practice
    Similar Words
Auditory Discrimination
    General Test
    Individual Practices for 20 Different Phonemes
Letter Names
Grapheme - Phoneme Correspondence
Initial Phoneme Classification
Practice with Word Families
Minimal Pair Discrimination Test
Whole Word Blending
Whole Word Decoding
Whole Sentence Decoding
Experience Stories
Selectable Plot Stories
Sentence Building

(Contact: John Risken, 200E Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7409)

RETAIL TRAINING 54

Montgomery Ward Buyer Training Program

(Contact: Eleanor Rud, Corporate Training Offices, 619 West Chicago Avenue, Chicago, Illinois 60607)

RUSSIAN 55

Russian Reading Lessons (89 hrs) 55a
(based on Dewey-Mersereau, Reading and Translating Contemporary Russian)

(Contact: Constance Curtin, 355 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-6500X45, or 217/333-8203)

@ audio response unit required on some lessons
+ microfiche required on some lessons
# touch panel required on some lessons

RUSSIAN -continued-

55b +Syntax (8 hrs)
55c Vocabulary for Tourists (8 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

56 SOCIAL WELFARE

Poverty Lines
English Poor Laws (to 1601)
Charity Organization Society and Neighborhood Movements
Overview of the Social Welfare System
Determining Eligibility in Public Assistance
Negative Income Tax

(Contact: Marilyn Flynn, 1207 W. Oregon, UIUC, Urbana, Illinois 61801, 217/333-1638)

57 SOCIOLOGY

Sociological Statistics-Laboratory Exercises (1.5+ hrs)

(Contact: Phyllis Ewer, Sociology Department, UICC, Chicago, Illinois 60680, 312/996-3009)

58 SPANISH

58a @Introduction to Spanish via the GLOPAR Method (15-18 hrs)
58b @Verb Conjugation Drills (4 hrs)
$Vocabulary Lessons (3 hrs)

(Contact: Armando Armengol, G89 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-9776)

58c +Syntax (14 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

\+ microfiche required
@ audio response unit required
$ student guide required

SPEECH AND HEARING SCIENCE 59

Audiology 59a
Audiology (open-ended)

Phonetics 59b
Simulation of Articulation (open-ended)
@Introductory Audio Drills and Syllable Transcription (2.5 hrs) 59c
Reading Drill (.75 hrs) 59d
Organogenetic Features (1.5 hrs) 59e
Phonetic Crossword Puzzles 59f

Phonology 59g
Phonology (1 hr)

(Contact: Elaine Paden, 335 Illini Hall, UIUC, Urbana, Illinois 61801, 217/333-3050)

STATISTICS 60

Statistical Laboratory (open-ended, .5 hrs in typical case) 60a
Statistical Service Package (open-ended, 8 hrs in typical case) 60b

(Contact: R. A. Avner, 350 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-6500)

SWEDISH 61

+Syntax (2 hrs)

(Contact: M. Keith Myers, G93 Foreign Languages Building, UIUC, Urbana, Illinois 61801, 217/333-1719)

TECHNICAL DRAFTING 62

$Multiview Projection (3 hrs)
$Crossword Puzzle on Drafting Terminology (1 hr)
$Engineering Terms (1 hr)

(Contact: Ben Lathan, Malcolm X College, 1900 W. Van Buren Chicago, Illinois 60612, 312/942-3295)

URBAN PLANNING 63

Social Policy Impact Models
Education Budget Allocation (2 hrs)

(Contact: James Anderson, Housing Research and Development, 1204 W. Nevada, UIUC, Urbana, Illinois 61801, 217/333-6532)

+ microfiche required
$ student guide required
@ audio response unit required

64 VEHICULAR TRAINING

Vehicular Training Course (30 hrs)
- 64a Battery Hydrometer Drill
  Evaporative Emissions
- 64b Engine Classification
  Crank-Motor Diagnosis
  Cranking Motors
- 64c Crankcase Ventilation
  Fuel Pump Volume Test
- 64d Electrical Fundamentals (Atoms and Charges)
  Voltage
  Electrical Current
  Fuel Pump Pressure Test
- 64e Lubrication/Oil System Components and Oil Flow
  Electronic Ignition/Components and Operation
  Automatic Transmissions/Torque Converters
  Automotive Oscilloscope
- 64f DC Generator
- 64g Introduction to Engine Fundamentals
  Introduction to Battery Ignition Systems
  Valve Train Assembly
- 64h Soldering
- 64i Ignition Game
- 64j Cooling Systems

(Contact: Larry D. Francis, MTC Project, 361 Engineering Research Laboratory, UIUC, Urbana, Illinois 61801, 217/333-7465, or Capt. Perry Main, PLATO IV TTOE, School of Applied Aerospace Sciences, Chanute Air Force Base, Rantoul, Illinois 61868, 217/495-2190)

65 VETERINARY MEDICINE

Anatomy
- 65a Veterinary Terminology (5 hrs)
- 65b +Anatomical Terminology (2 hrs)
- 65c +Veterinary Cytology (5 hrs)
- 65d +Principles of Circulation (5 hrs)
- 65e +Histology of the Skin (4 hrs)
  +Histology Superquiz (8 hrs)
- 65f Self-Assessment Program in Histology (2 hrs)

Physiology
- 65g Bioelectric Properties of Cell Membranes (2 hrs)
- 65h Electrocardiography (1 hr)
- 65i @+Phonocardiogram (1 hr)
- 65j Hormonal Control of Carbohydrate and Lipid Metabolism (2 hrs)
  +Essentials of Endocrinology (5 hrs)
- 65k Review of Endocrinology (4 hrs)
- 65l Identification of Hormone Unknowns (10 hrs)
- 65m

\+ microfiche required
@ audio response unit required

VETERINARY MEDICINE -continued-

Microbiology
+Laboratory Characteristics of Individual Bacteria (24 hrs) 65n
+Identification of Bacteriological Unknowns (10 hrs) 65o
+Veterinary Mycology Program (4 hrs) 65p
+Identification of Viral Unknowns 65q
Swine and Poultry (6 hrs)
Ruminants (5 hrs)
Equine (5 hrs)
Small Animals (5 hrs)
Self-Assessment Program in Microbiology (2 hrs) 65r

Parasitology 65s
+Identifications Important in Veterinary Medicine
Ticks (1 hr)
Mites (1 hr)
Fleas (1 hr)
Adult Flies (1 hr)
Fly Larvae (1 hr)
Mosquitoes (1 hr)
Lice (1 hr)
Quiz on Internal Parasites of Domestic Animals (2 hrs) 65t
+Protozoa of Importance in Veterinary Medicine (2 hrs) 65u

Pathology
Common Canine Tumors (4 hrs) 65v

Diseases of Large and Small Animals 65w
Veterinary Diagnosis Programs
+Small Animals (3 hrs)
Bovine Disorders (2 hrs)
Canine Nervous Diseases (4 hrs)
+Cattle Digestive Disorders (7 hrs)
Swine (2 hrs)
+Equine (3 hrs)
Small Animal Tumors (1 hr)
+Exotic Diseases (3 hrs)

Clinical and Laboratory Practice 65x
@#Heart Valve Locations (1 hr)
@Identification of Normal and Abnormal Heart Sounds (4 hrs) 65y
@Canine Cardiac Conditions (5 hrs) 65z
+EKG Interpretation (6 hrs) 65aa
+Canine Eye Diseases (6 hrs) 65ab
+Canine Neurological Diagnosis (30 hrs) 65ac

Clinical Pathology 65ad
Clinical Pathology Exercises on Anemia (2 hrs)
Cases in Clinical Pathology (9 hrs) 65ae
White Blood Cell Counts and Differentials; an Exercise in Evaluation (2 hrs) 65af

\+ microfiche required
\# touch panel required
@ audio response unit required

VETERINARY MEDICINE -continued-

65ag Applied Anatomy
+The Pupillary Light Reflex (5 hrs)

65ah Radiology
+Formulation of a Radiographic Technique Chart (3 hrs)
#+Diagnosis of Canine Hip Displasia (2 hrs)

Nutrition
65ai Nutritional Problems (6 hrs)
65aj Pearson Square (2 hrs)

Diseases of Poultry
65ak +Poultry Diseases (20 hrs)

Veterinary Economics and Business Management
65al Financial Analysis of a Veterinary Practice (Case Studies) (8 hrs)
Vetmed Calculator (1 hr)

Food Hygiene and Public Health
65am +Antemortem Inspection Procedures (3 hrs)
+Postmortem Inspection Procedures (5 hrs)
+Test on Antemortem and Postmortem Inspection Procedures (1 hr)
+Simulated Antemortem and Postmortem Inspections (6 hrs)
65an Veterinary Public Health Aspects of Milk and Dairy Products (2 hrs)
+Pasteurization of Milk and Dairy Products (2 hrs)
Food-Borne Disease Investigation (2 hrs)
65ao Zoonotic Diseases (2 hrs)

(Contact: (George Grimes, 161 Basic Science, UIUC, Urbana, Illinois 61801, 217/333-7467)

\+ microfiche required
\# touch panel required

SECTION III

Details about Available Lesson Materials and their Use

ACCOUNTANCY 1

Financial Accounting Principles 1a

Authors: J. C. McKeown, R. Cappetini, T. Ranney
J. Shlosberg, and others, UIUC
T. Lenehen, Wilbur-Wright College

Prerequisites: College level status assumed

Intended Use: Freshmen or sophomore college students

Actual Use: Students in Principles of Accounting Course (ACCY 101, UIUC)

Lesson Evaluation: Students using PLATO for homework assignments required over ten less hours than non-PLATO students. 85% of PLATO students completed homework assignments compared to 71% non-PLATO students. PLATO students also achieved 5% better final examination scores than non-PLATO students.

Descriptive Literature: McKeown, J. C. and T. K. Lenehen, "Educational Effects of Computer-based Instruction in Elementary Accounting," UIUC and City Colleges of Chicago (January, 1974); also appears in Proceedings of Conference on Computers in Undergraduate Curricula V, Pullman, Washington (June, 1974); McKeown, J. "PLATO Instruction for Elementary Accounting," unpublished report (May, 1974)

Managerial Accounting Principles 1b

Authors: J. C. McKeown, J. Shlosberg and others, UIUC

Prerequisites: Principles of Accounting I

Intended Use: Sophomore college students

Actual Use: Students in Principles of Accounting II (ACCY 105, UIUC)

Lesson Evaluation: Informal - successful material, but needs revisions. No formal evaluation as yet.

Descriptive Literature: None

AERONAUTICAL AND ASTRONAUTICAL ENGINEERING 2

Aerospace Engineering Games 2a

Author: James A. Bennett, UIUC

Prerequisites: Not specified

Intended Use: High school students or introductory engineering course

Actual Use: Demonstrations, students in Introduction to Engineering (ENG 100, UIUC), and students in Aeronautical Engineering courses

Lesson Evaluation: None at present

Descriptive Literature: Bennett, J. A., "Interactive Computer Simulation for Introduction to Engineering," paper presented at ASEE Annual Conference, Iowa State University, Ames, Iowa, June 25 - 28, 1973

AERONAUTICAL AND ASTRONAUTICAL ENGINEERING -continued

2b

Solid Mechanics

Author: James A. Bennett, UIUC
Prerequisites: Statics
Intended Use: First course in Strength of Materials for college sophomores or juniors
Actual Use: Flight Structures I course (AAE 224, UIUC)
Lesson Evaluation: Evaluation of Beam Theory lessons contained in "Descriptive Literature" reference.
Descriptive Literature: Bennett, J. A., "Interactive Lessons for Engineering," Proceedings of a Conference on Computers in the Undergraduate Curricula, Claremont Colleges, Claremont, California, June 18 - 20, 1973

2c

Aircraft Design

Authors: James A. Bennett and D. Dominick, UIUC
Prerequisites: Not specified
Intended Use: Introduction to Aerospace Engineering Design; Senior Design
Actual Use: 35 freshmen, 26 seniors (two semesters) in Flight Vehicle Design (AAE 241, UIUC) and Aerospace Systems Design (AAE 199, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: None

3 AGRONOMY

Soil Physics

Author: Charles Boast, UIUC
Prerequisites: General Physics
Intended Use: Courses in Physics of Plant Environment (AGRON 308, UIUC) and Soil Physics (AGRON 411, UIUC)
Actual Use: About 20 students (graduates and faculty) testing the lesson
Lesson Evaluation: Lesson use has resulted in revisions and clarifications.
Descriptive Literature: None

4 ART EDUCATION

Authors: Guy Hubbard and David Broecker, Indiana University
Prerequisites: Not specified
Intended Use: College, high school, adult education
Actual Use: In testing stage
Lesson Evaluation: None at present
Descriptive Literature: None at present

ASTRONOMY 5

Author: Elaine Avner, UIUC
Prerequisites: High school algebra
Intended Use: College, community college or high school students in elementary astronomy
Actual Use: Introductory astronomy course (GEOG 106, Parkland College)
Lesson Evaluation: None at present
Descriptive Literature: Avner, E. S., "Computer-Assisted Instruction in Astronomy," Journal of College Science Teaching, (April 1972)

BIOCHEMISTRY 6

Author: C. Coe Agee, UIUC
Prerequisites: Not specified
Intended Use: First year medical students
Actual Use: 12 medical students
Lesson Evaluation: None at present
Descriptive Literature: None

BIOLOGY

Enzyme Action 7a
Author: Kim Mast, UIUC
Prerequisites: Enrollment in Biological Science I (BIOL 100, UIUC)
Intended Use: College, junior college
Actual Use: Students in Biological Science I (BIOL 100, UIUC)
Lesson Evaluation: To be carried out in 1974-1975
Descriptive Literature: Supplementary workbook material available

BIOLOGY -continued

7b

Glycolysis, Krebs Cycle, Electron Transport Chain
Periodic Table of Elements
Photosynthesis
Respirometer Experiment
The Atom
Water Regulation in Human Body
Nerves, Stimulation and Inhibitory Poisons
Population Dynamics of the United States
Scaler Experiment and Carbon - 14 Dating

Authors: Richard Arsenty, George Kieffer, Steve Boggs, UIUC
Prerequisites: Enrollment in Biological Science I, II (BIOL 100, 101, UIUC)
Intended Use: College, junior college
Actual Use: Students in Biological Science I, II (BIOL 100, 101, UIUC)
Lesson Evaluation: Only qualitative evaluation in order to obtain data to correct the lesson material. Quantitative evaluation will be carried out in 1974-1975.
Descriptive Literature: Arsenty, R. P. and G. S. Kieffer, "An Evaluation of the Teaching Effectiveness of PLATO in a First Level Biology Course," CERL Report X-32 (December, 1971). Also supplementary workbook material available from author.

7c

Surface Area/Volume Problem in Living Systems
Meiosis
Diffusion and Osmosis

Authors: Richard Arsenty, Steve Boggs, UIUC
Prerequisites: Enrollment in Biological Science I (BIOL 100, UIUC)
Intended Use: College, junior college
Actual Use: To be used in fall of 1974
Lesson Evaluation: None
Descriptive Literature: None

BIOLOGY -continued

Biogeochemical Cycles: Carbon, Oxygen, etc. 7d
Classical Imprinting in Fowl
Comparative Serology as Evidence for Evolution
Effect of pH and Temperature on Enzyme Activity
Energy Relationships in Biological Systems
Natural Selection
Predator - Prey Relationships
Simple Animal Behavior
Social Behavior of Birds
Genetic Drift

Author: Gary Hyatt, UICC
Genetic Drift *Authors:* Gary Hyatt, John Denault, UICC, UIUC

Prerequisites: High school biology
Intended Use: University undergraduate
Actual Use: About 800 students from Heredity, Evolution and Society (BIOL 115, UIUC), Principles of Heredity (ZOOL 107, UIUC), General Biology (BIOS 100, 101, 102, UICC)
Lesson Evaluation: Qualitative, well received.
Descriptive Literature: Hyatt, G. W., D. C. Eades and P. Tenczar, "Computer-based Education in Biology," Bioscience, 22, 401-409 (1972)
Hyatt, G. W., R. A. Avner, W. Kastrinos and L. Porch, "Student Attitudes Toward PLATO IV and Class Achievement in a Computer-based Genetics 'Package'," submitted for publication. Also supplementary workbook material available from author.

Ultrastructural Concept of The Cell 7g

Authors: James Cooper, Gary Hyatt, Mayfair College, UICC
Prerequisites: High school biology
Intended Use: College and university undergraduate courses
Actual Use: To be used in Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

Use of Taxonomic Keys 7h

Author: Joan Mehney, UICC
Prerequisites: High school biology
Intended Use: University undergraduate courses
Actual Use: To be used in Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

BIOLOGY -continued-

7e Simple Probability and Genetics

Authors: Gary Hyatt, Robert Baillie, UICC, UIUC
Prerequisites: High school biology
Intended Use: University undergraduate
Actual Use: General Biology (BIOL 112, Kennedy-King College), Genetics (BIOS 240, 241 UICC) General Biology (BIOS 101, UICC), Microbiology (BIOS 250, UICC), Population Genetics (BIOS 343, UIUC)
Lesson Evaluation: Evaluation reported in "Descriptive Literature" reference.
Descriptive Literature: Hyatt, G. W., R. A. Avner, W. Kastrinos and L. Porch, "Student Attitudes Toward PLATO IV and Class Achievement in a Computer-based Genetics 'Package'," submitted for publication. Also supplementary workbook material available from author.

7f Principles of Heredity Through Fruit Fly Simulation

Authors: Gary Hyatt, David Eades, and John Denault, UICC, UIUC
Prerequisites: High school biology
Intended Use: University undergraduate courses
Actual Use: Heredity, Evolution and Society (BIOL 115, UIUC), General Biology (BIOS 101, 240, 241, 343 UICC), General Biology (BIOL 112, Kennedy-King College)
Lesson Evaluation: Evaluation reported in 'Descriptive Literature' references.
Descriptive Literature: Hyatt, G. W., D. C. Eades and P. Tenczar, "Computer-based Education in Biology," Bioscience, 22, 401-409 (1972)
Hyatt, G. W., R. A. Avner, W. Kastrinos and L. Porch, "Student Attitudes Toward PLATO IV and Class Achievement in a Computer-based Genetics 'Package'," submitted for publication. Also supplementary workbook material available from author.

BIOLOGY -continued-

DNA-RNA Protein Synthesis 7i

Author: Paul Tenczar, UIUC
Prerequisites: High school biology
Intended Use: University undergraduates
Actual Use: Several hundred students among courses in General Biology (BIOS 101, UICC), Genetics (BIOS 240, 241, UICC), Heredity, Evolution and Society (BIOL 115, UIUC), Microbiology(BIOS 250, UIUC).
Lesson Evaluation: Evaluation reported in Descriptive Literature references.
Descriptive Literature: Hyatt, G. W., D. C. Eades and P. Tenczar, "Computer-based Education in Biology," Bioscience, 22, 401 409 (1972)
Hyatt, G. W., R. A. Avner, W. Kastrinos and L. Porch, "Student Attitudes Toward PLATO IV and Class Achievement in a Computer-based Genetics 'Package'," submitted for publication. Also supplementary workbook material available.

Simple Chemistry 7j
Cell Structure and Function

Authors: Richard and Ronald Crockett, Kennedy-King College
Prerequisites: Not specified
Intended Use: Introductory college biology
Actual Use: Over 100 students in Introductory Biology (BIOL 112, Kennedy-King College)
Lesson Evaluation: Qualitative - satisfactory.
Descriptive Literature: None

Blood Typing 7k
Meiosis
Mitosis
Hormonal Control of Menstrual Cycle

Author: Lee Porch, Kennedy-King College
Prerequisites: Not specified
Intended Use: High school, junior college
Actual Use: Students in Introductory Biology (BIOL 112, Kennedy-King College)
Lesson Evaluation: Students find lessons useful and interesting. 'Blood Typing" is useful if laboratories are not available or as an introduction to laboratory work.
Descriptive Literature: None

Mecnanics of Cardiac Cycle 7l

Author: Fay Bomer, Kennedy-King College
Prerequisites: Not specified
Intended Use: Introductory college biology
Actual Use: General Biology (BIOL 111, Kennedy-King College)
Lesson Evaluation: None at present
Descriptive Literature: None

8 BIOPHYSICS AND PHYSIOLOGY

8a Bioelectric Phenomena in Excitable Cells

Authors: David Barker, Russ McKown, Thomas Murphy, David Walter, UIUC

Prerequisites: High school algebra; introduction in the course to the phenomena of action potentials in the nervous system.

Intended Use: Students in introductory survey level course in physiology

Actual Use: Students in Introduction to Human Physiology (PHYSL 103, UIUC)

Lesson Evaluation: Student reaction was positive. Some quantitative evaluations are available from Russ McKown, 42 Burrill Hall, UIUC, Urbana, Illinois, 61801, 217/333-4687.

Descriptive Literature: McKown, R. and L. Barr, "Simulation of Excitable Membrane Experiments," The Physiologist, 16-4, 658-668 (November, 1973)

8b Modelling

Authors: David Barker, Russ McKown, Thomas Murphy, David Walter, UIUC

Prerequisites: Graduate level status

Intended Use: Graduate work in electrophysiology

Actual Use: Classroom demonstration in graduate courses

Lesson Evaluation: Programs are best as single terminal classroom demonstrations because of the time taken by the program calculations.

Descriptive Literature: McKown, R. and L. Barr, "Simulation of Excitable Membrane Experiments," The Physiologist, 16-4, 658-668 (November, 1973)

8c Compound Action Potential - Neuroscience

Author: Steve Giles, UIUC

Prerequisites: Knowledge of basic peripheral nervous systems

Intended Use: Freshmen medical students and graduate students in physiology

Actual Use: Fall, 1974

Lesson Evaluation: None

Descriptive Literature: None

8d Female Reproductive Physiology

Authors: Darlene Chirolas, Benita Katzenellenbogen, Richard Rende, UIUC

Prerequisites: Basic reproductive physiology

Intended Use: Freshmen medical students

Actual Use: Fall, 1974

Lesson Evaluation: None

Descriptive Literature: None

BIOPHYSICS AND PHYSIOLOGY -continued-

Male Reproductive Physiology 8e
Authors: Benita Katzenellenbogen, Richard Rende, UIUC
Prerequisites: Basic Endocrinology
Intended Use: Freshmen medical students
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

BOTANY 9

Growth and Development 9a
Photosynthesis
Authors: Alan Haney, John Noell, Mary Manteuffel, Steve Wolniak, UIUC
Prerequisites: Some knowledge of botany
Intended Use: Introductory College Botany Laboratory Exercises
Actual Use: About 150 students in General Botany (BOT 100, UIUC)
Lesson Evaluation: PLATO students covered same material as lab students in about one-third as much time. There was no significant achievement difference between PLATO and non-PLATO groups. Students became more receptive to CAI as course progressed. If the course used PLATO for its simulated laboratory work, less lab time would be required. Either the botany course could be reduced from 4 to 3 hours credit with no loss in student learning or more material could be added to the 4 hr credit course. Because of the time saved using PLATO, the staff found they could personalize the teaching to a greater extent than is possible with large groups of students in the conventional situation.
Descriptive Literature: Haney, A., "Development of Computer-Assisted Instruction for General Botany," report of an Undergraduate Instructional Awards Project for summer 1973.

Plant Genetics 9b
Authors: Alan Haney, John Noell, Robert Baillie, UIUC, Gary Hyatt, UICC
Prerequisites: Some introductory biology
Intended Use: Botany laboratory simulation
Actual Use: 85-90 students in General Botany (BOT 100, UIUC)
Lesson Evaluation: In preparation
Descriptive Literature: None

10 BUSINESS ADMINISTRATION

Management Science

Author: Charles Necco, California State College

Prerequisites: Business Mathematics

Intended Use: Senior business students, candidates for MBA degree

Actual Use: 50 students in Quantitative Analysis of Decisions course (B ADM 573, UIUC)

Lesson Evaluation:

1) Students using PLATO scored higher on exams than those in conventional classroom groups.
2) Students using PLATO completed homework assignments quicker than non-PLATO students.
3) Student opinion was highly favorable to PLATO.

Descriptive Literature: Necco, C. R., "The Use of the PLATO System in an Operations Research Course," CERL Report X-36, (November, 1973)

11 BUSINESS SKILLS

Business Skills Training

Inventory Management for Supply Specialists

Authors: Lowry Air Force Base Personnel

Prerequisites: None specified

Intended Use: Testing supply specialists

Actual Use: Students in technical training at Lowry Air Force Base

Lesson Evaluation: In preparation

Descriptive Literature: "Demonstration and Evaluation of the PLATO IV Computer-based Education System," First Annual Report on 'Computer-based Education for a Volunteer Armed Service Personnel Program' for U.S. Army Contract DAH C-15-73-C-0077 (August 1, 1972 - January 1, 1974)

12 CHEMISTRY

Analytical

12a Acid/Base Titration Curves

Author: E. H. Nagel, Valparaiso University

Prerequisites: Enrollment in general chemistry course

Intended Use: General chemistry and quantitative analysis courses

Actual Use: Now being tested by students

Lesson Evaluation: None

Descriptive Literature: None

12b Potentiometric Determination of Solubility Product Constants

Author: E. H. Nagel, Valparaiso University

Prerequisites: General chemistry

Intended Use: Second semester of advanced chemistry

Actual Use: Now being tested by students

Lesson Evaluation: None

Descriptive Literature: None

CHEMISTRY -continued-

General

Gas Laws 12c

Author: Milada Benca, Kennedy-King College
Prerequisites: Not specified
Intended Use: Basic Chemistry I (CHEM 121, Kennedy-King College) and Inorganic Chemistry (CHEM 210, Kennedy-King College)
Actual Use: 100 students in Basic Chemistry (CHEM 121, Kennedy-King College)
Lesson Evaluation: None at present
Descriptive Literature: Benca, M., "Teacher's Guide for PLATO Lesson on the Gas Laws"

12d

Calculator and Graphing
Chemical Formulas Practice
Inorganic Nomenclature
Inorganic Qualitative Analysis Simulation
Kinetics
Kinetic Molecular Theory
Mass Spectra Illustration
Nuclear Chemistry
Octahedral Ligand Field Effect
Oxidation and Reduction
Quiz on Stoichiometry
Review of Math Skills
Use of the Slide Rule

Authors: Robert Grandey, Larry Francis, Parkland College, UIUC
Prerequisites: High school algebra
Intended Use: College freshmen
Actual Use: Over 100 students in General Chemistry (CHE 101, CHE 102, Parkland College)
Lesson Evaluation: Not yet available
Descriptive Literature: Grandey, R. C., "The Use of Computers to Aid Instruction in Beginning Chemistry," J. Chem. Educ., 48-12, 741, (December, 1971)
Francis, L., "Computer-Simulated Qualitative Inorganic Chemistry," J. Chem Educ., 50-8, 556, (August, 1973)

Nodes and Shapes of Atomic Orbitals 12e

Author: Harrison Shull, Indiana University
Prerequisites: Enrollment in freshman chemistry
Intended Use: Student exploratory work on orbitals
Actual Use: Students in General Chemistry at Indiana University and UIUC
Lesson Evaluation: None
Descriptive Literature: None

CHEMISTRY -continued-

12f

General -continued-

Metric System
Scientific Notation
Introduction to Atomic Theory
Molecular Formulas and Percent Composition
Solutions: Concentration
Author: Ruth Chabay, UIUC

Introduction to Acid - Base Titration
Ionic and Covalent Bonding: Lewis Structures
Authors: Ruth Chabay and Stanley Smith, UIUC

Inorganic Nomenclature
Acid/Base Titration Experiment
Acids and Bases in Water
Author: Stanley Smith, UIUC

pH and Acid-Base Titration Curves
Problems on Concentration and Stoichiometry
Freezing Point Depression Experiment
Heats of Chemical Reactions: Hess's Law
Chemical Equilibrium Problems
Author: James Ghesquiere, UIUC

Prerequisites: High school chemistry and concurrent enrollment in college general chemistry
Intended Use: Introductory college chemistry
Actual Use: Several hundred students at UIUC, Kennedy-King College, Illinois State University, Parkland College and students at military training PLATO sites.
Lesson Evaluation: On-line graphical and statistical analysis of times, errors, percent correct without help and number of problems required to obtain a specified degree of mastery. Revision of material is based on an analysis of actual student error and learning rates.
Descriptive Literature: Smith, S. G., J. R. Ghesquiere, and R. A. Avner, "The Use of Computers in the Teaching of Chemistry - Evaluation of Lesson Effect. iveness," J. Chem Educ., 51-4, 243-244 (April, 1974)

CHEMISTRY -continued-

12g

Organic
- Organic Nomenclature
- Writing Structural Formulas
- Bonding in Carbon Compounds
- Optical Activity
- Alkene Chemistry
- Substitution and Elimination
- Alcohol Chemistry
- Additions to Carbonyl Groups
- Reactions of Aldehydes and Ketones
- Arene Chemistry
- Synthesis of Aromatic Compounds
- Introduction to NMR
- Spin-Spin Coupling
- Interpretation of NMR Spectra
- Infrared Spectroscopy
- Reactions Used in Qualitative Analysis
- Qualitative Organic Analysis
- Purification by Crystallization

Author: Stanley Smith, UIUC

Aliphatic Synthesis

Authors: Ruth Chabay and Stanley Smith, UIUC

Carbohydrates

Author: Harvey Myers, UIUC

Prerequisites: General chemistry and concurrent enrollment in course in organic chemistry

Intended Use: Organic chemistry students

Actual Use: Several hundred students of UIUC, Purdue University, Kennedy-King College, Malcolm X College, Wright College, Parkland College, Illinois State University, and students at military training PLATO sites.

Lesson Evaluation: On-line graphical and statistical analysis of times, errors, percent correct without help and number of problems required to obtain a specified degree of mastery. Revision of material is based on an analysis of actual student error and learning rates.

Descriptive Literature: Smith, S. G., "The Use of Computers in the Teaching of Organic Chemistry," J. Chem. Educ., 47-9, 608-611 (September, 1970); Smith, S. G., "Computer-aided Teaching of Organic Syntheses," J. Chem. Educ., 48-11, 727-729 (November, 1971); Smith, S. G., J. R. Ghesquiere, "Computer-Based Teaching of Organic Chemistry," Computer-Assisted Instruction in Chemistry, Part B. Applications, edited by J. S. Mattson, H. B., Mark Jr., H. C. MacDonald Jr., Marcel Dekker, Inc., New York, Chapter 2, 51-81, 1974.

13 CHINESE

Author: Chin-Chuan Cheng, UIUC
Prerequisites: Not specified
Intended Use: First year course in Chinese (CHIN 201-202, UIUC)
Actual Use: 30 students in CHIN 201-202
Lesson Evaluation: None specified
Descriptive Literature: Chen, C. C., "Computer-based Chinese Teaching Program at Illinois," Journal of the Chinese Language Teachers Association, 8, 75-79 (1973)

14 CINEMA STUDIES

Experimenting with Film Studies
Authors: Edwin Jahiel, George Lilly, Lynn Manna, UIUC
Prerequisites: Permission of instructor
Intended Use: Courses in comparative cinema
Actual Use: Courses in French and German Cinema, Comparative Cinema (FR 199, 288, 289, 452, GER 382, C LIT 472, UIUC)
Lesson Evaluation: Programs allow student input in many ways (from multiple choice to essay format). Bibliographies differ from conventional bibliographies since they reference items (and their locations) on the University of Illinois campus (including a file of student papers maintained by the instructor).
Descriptive Literature: None

15 COMMUNICATIONS

Authors: Donald P. Mullally, Michael B. Soper, UIUC
Prerequisites: Registration in R TV 362 (UIUC) or similar course
Intended Use: Management simulation for college seniors
Actual Use: Used as required 'homework' in Radio and Television Station Management course, (R TV 362, UIUC) and used in course in Television and Radio Production (SPCH 232, UICC)
Lesson Evaluation: Students who completed the lesson, and who re-tried the lesson to improve their performance, were consistently higher performers on case problems in class, and generally achieved higher grades in the class, although it is clear there are interacting variables.
Descriptive Literature: None

COMPUTER MANAGED INSTRUCTION 16

Management of Study and Learning for Course in Elementary Economics
Management of Study and Learning for Course in American History

Authors: Steve Alessi, Barry Biddle, Tom Anderson
Prerequisites: As required by course being 'managed'
Intended Use: To provide means for studying the management of learning from text
Actual Use: Management of learning in elementary economics and American history.
Lesson Evaluation: None
Descriptive Literature: None

COMPUTER SCIENCE 17

Authors: H. George Friedman, Jr., Jurg Nievergelt, Richard Montanelli, Thomas Wilcox and many others, UIUC 17a
Prerequisites: Depends on the lesson to be used
Intended Use: Introductory computer programming courses
Actual Use: Many hundred students in Introduction to Computers for Teachers, Introduction to Computer Programming, Honors course in Computer Science, Computer-Assisted Instruction (CS 106, 121, 109, 357, SE ED 357, UIUC)
Lesson Evaluation: Positive responses and comments are used to update and revise materials.
Descriptive Literature: None

Filing System 17b

Author: Larry White, UIUC
Prerequisites: None
Intended Use: Supporting system for writing computer programs in various programming languages. Oriented towards small classes in need of time-sharing computing system.
Actual Use: More than 100 students in Calculus Computational Laboratory I, II (Math 190, 191, UIUC) and other courses.
Lesson Evaluation: Extremely stable text-editing system, comprehensive options for instructors.
Descriptive Literature: In preparation. Internal documentation available.

COMPUTER SCIENCE -continued

Compilers

17c BASIC Compiler/Interpreter

Authors: Axel Schreiner, Larry White, UIUC
Prerequisite: Knowledge of the BASIC programming language (documentation on-line)
Intended Use: Time-sharing system; programming in BASIC for small groups; elementary graphics available (used in conjunction with the filing system described above)
Actual Use: More than one hundred students in various courses at UIUC
Lesson Evaluation: System is very stable, due to much usage. Supported language is comprehensive enough for most beginning applications, but not for extremely computer-bound problems. Graphic facilities are very attractive. Language could easily be expanded to accomodate other applications.
Descriptive Literature: In preparation. Internal documentation available.

17d A LOGO-like Extensible Language
FORTRAN Compiler/Interpreter

Authors: Axel Schreiner, Larry White, UIUC
Prerequisites: None
Intended Use: General purpose index lesson independent of application area
Actual Use: More than 100 students in Calculus Computational Laboratory (Math 190, 191, UIUC) and other courses.
Lesson Evaluation: Self-explanatory, stable and ideal for non-structured collection of lessons.
Descriptive Literature: Internal documentation available.

17e PLATO TUTOR Language Training Lessons

Authors: R. E. Bohn, L. D. Francis, D. J. Meller, D. E. Hyde, C. N. Burson, UIUC
Prerequisites: None
Intended Use: To train new PLATO authors
Actual Use: More than 200 students
Lesson Evaluation: None
Descriptive Literature: Bohn, R. E., "An Introduction to the Basic Elements of the TUTOR Language", CERL MTC Report (1974).

17f Data Structures

Author: Stuart C. Shapiro, Indiana University
Prerequisites: Some programming experience
Intended Use: Supplement to Data Structures course
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

DANISH 18

Syntax
Authors: M. Keith Myers, Fritz Larsen, UIUC, Odense University
Prerequisites: Not specified
Intended Use: First year college Danish (SCAN 101, 102, UIUC)
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

ECONOMICS 19

Theory of Equilibruium in an Exchange Economy 19a
Author: Robert Gillespie, UIUC
Prerequisites: According to course
Intended Use: Undergraduates
Actual Use: Intermediate Micro-Economic Theory (ECON 300, UIUC), International Economics (ECON 328, UIUC), Elements of Economics (ECON 108, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: Gillespie, R., "Computer-Assisted Instruction in Economics: An Approach for Illustrating General Equilibrium Concepts," Proceedings of a Conference on Computers in Undergraduate Curriculum, Claremont Colleges, Claremont, California (June 18 - 20, 1973)

Macroeconomics 19b
Author: Donald Paden, UIUC
Prerequisites: Review of introductory material on income and employment (first course)
Intended Use: Principles of Economics and Intermediate Macroeconomics
Actual Use: In Principles of Economics course (ECON 108, UIUC)
Lesson Evaluation: Generally favorable student reaction as judged by evaluative questionnaire given to students after they finished the lessons.
Descriptive Literature: Handout of directions and problems for students

20 EDUCATION

20a Mathematics

Secondary and Continuing Education

Author: Janice Flake, Florida State University
Prerequisites: Mathematics and education background
Intended Use: Undergraduate teacher education program
Actual Use: 100 students in Technic of Teaching Mathematics in the Secondary School (SE ED 241t, UIUC), 75 for developmental purposes, 25 for data collection.
Lesson Evaluation: Development stages included testing with experienced teachers and methods students. Needed changes indicated from usage were incorporated in the program. Data collected from experimental class at beginning, intermediate time, and end of use of the program. Participants definitely increased their skill in strategies and ability to react to simulated student responses by redirecting and probing. Feedback from students indicate strong enthusiasm for such an approach. Materials are to be used in conjunction with class discussion.
Descriptive Literature: Prepared 'handout' available

20b Physical Education

Physical Education Curriculum Planning - A Simulation

Author: Karen Fry, UIUC
Prerequisites: Physical education major
Intended Use: Physical education curriculum courses - undergraduate and graduate
Actual Use: Currently being subject tested
Lesson Evaluation: Incomplete
Descriptive Literature: None

20c Psychology

Effective Feedback Skills for Company Commanders

Author: D. C. Wightman, D. R. Weller, W. R. Brown, J. E. Hearn, K. O. Tyson, Orlando Naval Training Equipment Center
Prerequisites: None specified
Intended Use: Educational psychology experiment
Actual Use: Training company commanders
Lesson Evaluation: In preparation
Descriptive Literature: "Demonstration and Evaluation of the PLATO IV Computer-based Education System," First Annual Report on 'Computer-based Education for a Volunteer Armed Service Personnel Program' for U. S. Army Contract DAH C-15-73-C-0077 (August 1, 1972 - January 1, 1974)

EDUCATION -continued-

Science

Teaching for Mastery in Science Lessons 20d

Author: James R. Okey, Indiana University
Prerequisites: Ability to write performance objectives
Intended Use: Preservice or inservice teachers
Actual Use: Sixty preservice teachers in a science methods class
Lesson Evaluation: Both an achievement and an attitude test were administered to the sixty teachers. Tests now being processed.
Descriptive Literature: None

Test Construction 20e

Supervision of Practice Exercise
Characteristics of Testing
Purposes of Testing
Types of Tests
Author: G. Himelfarb, Aberdeen Proving Ground

Test Administration
Test Analysis
Test Analyzer and Math Drills
Author: C. E. Hill, Aberdeen Proving Ground

Test Item Analysis
Author: F. C. Dare, Aberdeen Proving Ground

Prerequisites: None specified
Intended Use: Test construction and instructor training courses
Actual Use: Students in courses at Aberdeen Proving Ground
Lesson Evaluation: In preparation
Descriptive Literature: "Demonstration and Evaluation of the PLATO IV Computer-based Education System," First Annual Report on 'Computer-based Education for a Volunteer Armed Service Personnel Program' for U. S. Army Contract DAH C-15-73-C-0077 (August 1, 1972,- January 1, 1974)

21 ELECTRICAL/INFORMATION ENGINEERING

21a Computer-Guided Experimentation

Author: James P. Neal, UIUC

Prerequisites: Freshman level and specified reading of referenced text

Intended Use: Technician and undergraduate laboratory instruction

Actual Use: 25 undergraduate students in Electrical Engineering Problems (EE 272, UIUC)

Lesson Evaluation: One-half class inexperienced, one-half enrolled in the conventional EE laboratory course. The inexperienced group took twice as long on the initial experiment. Thereafter all students progressed at about the same average rate. All students recommended incorporation of computer-guided experimentation into regular introductory electrical engineering laboratory course.

Descriptive Literature: Neal J. P. and D. V. Meller, "Computer-Instruction," IEEE, E-15, 147-153 (August, 1972) (also available as CERL Report X-30);
Neal, J. P., "The CGE - PLATO Electronic Laboratory Station Structure and Operation", CERL Report, Spring 1974.

21b Network Analysis

Authors: Paul Weston, Roger Grossel, UIUC, Lowry Air Force Base

Prerequisites: None specified

Intended Use: Sophomore level, introductory materials

Actual Use: Supplement to course in Networks (EE 260, UIUC)

Lesson Evaluation: At present material is set of simulations. Drill material in this subject is presently being designed. See evaluation in "Descriptive Literature" reference.

Descriptive Literature: Grossel, R. L., "A Computer-based Education Approach to Electrical Network Theory: Lesson Development, Use and Evaluation," CERL Report X-29, (July, 1971)

21c Basic Electronics

Authors: J. Feil, A. Go, J. Kirn, R. Skandis, UICC

Prerequisites: Enrollment in sophomore engineering courses

Intended Use: Supplementary work for introductory electronics courses

Actual Use: Students in Introductory Electronics and Electronic Systems

Lesson Evaluation: Interviews with students indicated very favorable response. Unanimous opinion that lessons are helpful for review. Fifty/fifty opinion on the value as "original exposure to ideas."

Descriptive Literature: Internal descriptive reports available

ELECTRONIC TRAINING 22

22a

Electronic Symbols
Author: Peggy McClintock, U.S. Army Signal Center and School
No detailed information available

Parallel Circuits
Series Parallel Circuits
Ohm's Law
Author: Joe Rich, U.S. Army Signal Center and School
No detailed information available

D C Power
Author: Janet Lamb, U.S. Army Signal Center and School
No detailed information available

Series Circuits
Author: Tom Button, U.S. Army Signal Center and School
No detailed information available

Trouble Shooting
Author: Kermit Van Pelt, U.S. Army Signal Center and School
No detailed information available

22b

Simpson Graphics Multimeter
PSM Multimeter (A through L)
Author: George Lahey, Naval Personnel Research and Training Laboratory

Oscilloscope Training
Author: Herb Stern, Naval Personnel Research and Training Laboratory

Prerequisites: None specified
Intended Use: Educational psychology experiments
Actual Use: Research
Lesson Evaluation: None specified
Descriptive Literature: None

ENGLISH 23

Usage/Grammar

23a

Basic English
Author: Sally Wallace, Parkland College
Prerequisites: None specified
Intended Use: Remedial English, a non-transferable credit course at Parkland College
Actual Use: Students in Remedial English (ENG 092, Parkland College)
Lesson Evaluation: None at present
Descriptive Literature: None

ENGLISH -continued-

23b Intermediate English
Author: Doris Barr, Parkland College
Prerequisites: High school diploma
Intended Use: Intermediate English courses
Actual Use: Courses in Communication Skills (ENG 104, 105, Parkland College)
Lesson Evaluation: None at present
Descriptive Literature: Handout material for students in conjunction with lessons.

23c Transformational Grammar
Author: Elise Spencer, Dawson Skill Center

Review English
23d Plural Forms of Nouns
Possessives
Sentence Recognition
Homonyms (its, their, your)
Author: Barbara Geaither, Malcolm X College
Subject-Verb Agreement
23e Diagnostic Testing
Author: Errol Magidson, Kennedy-King College

23f English Drills
Author: Mitsuru Yamada, Malcolm X College

23g Rhyme
Author: Joe Vojacek, Malcolm X College
23h "Portrait" e e cummings
Reading
Author: Pauline Jordan, UIUC

23i Research Papers
Author: Bob Bator, Olive-Harvey College

Prerequisites: None specified
Intended Use: Community college English classes
Actual Use: Classes at Chicago City Colleges and Parkland College
Lesson Evaluation: Positive feedback from students
Descriptive Literature: Teachers' guides available for most lessons.

24 ENGLISH AS A SECOND LANGUAGE

24a Review of English Grammar
Author: Roberta Stock, UIUC
Prerequisites: Basic English communication ability
Intended Use: Grammar review for foreign students at college level
Actual Use: Students in English as a Second Language (ESL 109, 111, Intensive English Institute, UIUC).
Lesson Evaluation: Very positive reaction from students.
Descriptive Literature: None

ENGLISH AS A SECOND LANGUAGE -continued-

Syntax **24b**

Authors: M. Keith Myers and Roberta Stock, UIUC
Prerequisites: Basic English communication ability
Intended Use: Students learning English as a second language
Actual Use: Foreign students (Intensive English Institute, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: None

FOREIGN LANGUAGES -- GENERAL **25**

Author: M. Keith Myers, UIUC
Prerequisites: Prior language training
Intended Use: Multilingual concepts practice in 12 languages
Actual Use: General use
Lesson Evaluation: None
Descriptive Literature: None

FRENCH **26**

Beginning French **26a**

Author: Fernand Marty, UIUC, assisted by Robert Ariew, UIUC
Prerequisites: None specified
Intended Use: Students 10th grade and up
Actual Use: High school students and students in Beginning French (FR 101, 102, 103, 104, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: None

Remedial Lessons **26b**

Authors: Fernand Marty, Anne-Marie Sagi, UIUC, assisted by Robert Ariew and Robert Kuhn, UIUC
Prerequisites: One year of French
Intended Use: Remedial work in French syntax and morphology
Actual Use: Students from second year French (FR 103, 104, UIUC)
Lesson Evaluation: None specified. Used for remedial and review work.
Descriptive Literature: None

Applied Linguistics **26c**

Author of linguistic materials: Fernand Marty, UIUC, assisted by Robert Ariew and Robert Kuhn, UIUC
Prerequisites: Three or four years of French
Intended Use: For prospective teachers of French
Actual Use: French department at UIUC
Lesson Evaluation: None at present
Descriptive Literature: None

FRENCH -continued-

26d Culture and Civilization

Authors: Fernand Marty and Bruce Mainous, UIUC, assisted by Robert Kuhn and Susan Campanini, UIUC
Prerequisites: Reading knowledge of French
Intended Use: Demonstrations and courses in French culture
Actual Use: Course in French Culture and Civilization (FR 334, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: None

26e Phonetics

Author: M. Keith Myers, UIUC
Prerequisites: Two years of college French
Intended Use: Oral French and French phonetics courses
Actual Use: Students in Oral French course (FR 211, UIUC) and second French Phonetics course (FR 313, UIUC)
Lesson Evaluation: The material is being used at a lower level than originally intended. One lesson (Twenty Questions) is not designed for use at a lower level. It has a dialogue-type format and is intended for review of the knowledge of phonetic terminology.
Descriptive Literature: None

26f Syntax

Authors: M. Keith Myers and Roby Ariew, UIUC
Prerequisites: None
Intended Use: First year college French courses
Actual Use: Beginning French courses (FR 101, 102, UIUC)
Lesson Evaluation: None
Descriptive Literature: Myers, M. K. and R. A. Ariew, "Sentence Generation via Classroom and PLATO", Proceedings of the Second National Conference on Visual Literacy, Chicago, Illinois (April, 1970); Myers, M. K. and R. A. Ariew, "A New Type of CAI Foreign Language Lesson (Sentence Generation Through Visual Cues), "Proceedings of the Conference on Computers in the Undergraduate Curricula, University of Iowa, Iowa City, Iowa (September, 1970).

26g Vocabulary

Authors: M. Keith Myers and Bruce Phillips, UIUC
Prerequisites: Determined by instructor
Intended Use: First three semesters college French
Actual Use: Beginning French courses (FR 101, 102, 103, UIUC)
Lesson Evaluation: None
Descriptive Literature: None

GENETICS 27

Chromosome Karotyping 27a

Authors: Darlene Chirolas, Paul Tenczar, UIUC
Prerequisites: Basic College Genetics
Intended Use: Freshmen medical students and college genetics students
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

Genetic Counselling 27b

Authors: Darlene Chirolas, Michael Grossman, UIUC
Prerequisites: Basic genetics, some clinical training
Intended Use: Medical students, graduate students
Actual Use: Students in Human Genetics (ZOOL 315, UIUC) and first year medical students from School of Basic Medical Science
Lesson Evaluation: Good acceptance by the students.
Descriptive Literature: None

Genetic Risk Estimates 27c

Authors: Darlene Chirolas, William Daniel, UIUC
Prerequisites: Basic undergraduate genetics; probability theory
Intended Use: Medical students, graduate students
Actual Use: Students in Human Genetics (ZOOL 315, UIUC) and first year medical students from School of Basic Medical Science
Lesson Evaluation: Pretest, post-test, and data taken during student use indicated good acceptance after the addition of some vocabulary and help sequences.
Descriptive Literature: None

Quantitative Genetics 27d

Authors: Michael Grossman, David Walter, Darlene Chirolas, UIUC
Prerequisites: Population genetics, some knowledge of quantitative genetics (i.e., DS/BIOL 316, UIUC)
Intended Use: Graduate course in population genetics
Actual Use: Course in Population Genetics and Animal Breeding (DS/BIOL 416, UIUC)
Lesson Evaluation: Subjective evaluation indicates favorable acceptance by students.
Descriptive Literature: Grossman, M. and D. Chirolas, "Computer Assisted Instruction in Teaching Quantitative Genetics," Journal of Heredity, 64-2, 101-103 (1973); Grossman, M. and D. Walter, "Computer Assisted Instruction in Animal Genetics," NACIA Journal (June, 1974)

GENETICS -continued-

27e Population Genetics

Authors: Michael Grossman, David Walter and Darlene Chirolas, UIUC

Prerequisites: Introductory genetics, some knowledge of population genetics

Intended Use: Undergraduate course in population genetics

Actual Use: Course in Population Genetics (DS/BIOL 316, UIUC)

Lesson Evaluation: Subjective evaluation indicates favorable acceptance by students.

Descriptive Literature: Chirolas, D. and M. Grossman, "Computer-Assisted Instruction in Teaching Population Genetics", Journal of Heredity, 63-3, 145-147 (1972); Grossman, M. and D. Walter, "Computer Assisted Instruction in Animal Genetics," NACIA Journal (June, 1974)

27f Plant Genetics

Authors: Alan Haney, John Noell, Robert Baillie, UIUC
Gary Hyatt, UICC

Prerequisites: Some introductory biology

Intended Use: Botany laboratory simulation

Actual Use: Students in General Botany (BOT 100, UIUC)

Lesson Evaluation: In preparation

Descriptive Literature: None

27g Chromosomal Crossing Over in Diploid Organisms

Authors: Karen Frank, Gary Hyatt, UICC

Prerequisites: General Biology

Intended Use: University undergraduates

Actual Use: Ready for use in Fall, 1974

Lesson Evaluation: None

Descriptive Literature: None

28 GEOGRAPHY

28a Physical Geography of France

Author: Fernand Marty, UIUC, assisted by Robert Kuhn and Susan Campanini, UIUC

Prerequiesites: Reading knowledge of French

Intended Use: Demonstrations and courses in French culture

Actual Use: Course in French Culture and Civilization (FR 335, UIUC)

Lesson Evaluation: None at present

Descriptive Literature: None

GEOGRAPHY -continued-

Social/Cultural Geography 28b

Author: Ivan M. Pour, UIUC
Prerequisites: None
Intended Use: To supplement or replace topics that tend to be confusing in lectures in course in Social Geography
Actual Use: To date - class demonstrations
Lesson Evaluation: Feedback from students used for revisions of the lessons.
Descriptive Literature: None

GEOLOGY 29

Geology of France

Author: Bruce Mainous, UIUC, assisted by Robert Kuhn and Susan Campanini, UIUC
Prerequisites: Reading knowledge of French
Intended Use: Demonstrations and courses in French culture
Actual Use: Course in French Culture and Civilization (FR 335, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: None

GERMAN 30

Syntax 30c

Authors: M. Keith Myers, Russell Snyder, Jurgen Dollein, Madeleine Choffrut, UIUC
Prerequisites: None
Intended Use: First year German course
Actual Use: Elementary German course (GER 101, 103, UIUC; high school students)
Lesson Evaluation: Positive reaction from users.
Descriptive Literature: None

Vocabulary 30b

Authors: M. Keith Myers and others, UIUC
Prerequisites: None
Intended Use: First year college German
Actual Use: Elementary German course (GER 101, 102, UIUC)
Lesson Evaluation: Positive reaction from students.
Descriptive Literature: None

GERMAN -continued-

30c

Vocabulary and Reading Skills

Author: David Weible, UICC
Prerequisites: None specified
Intended Use: Introductory German
Actual Use: Elementary German I (GER 101, UICC)
Lesson Evaluation: Lesson effectiveness was sharply increased by a number of changes in the lesson and the role it was given in the course. Ten percent of the final course grade depended upon student ability to translate a sight passage based on material contained in the lesson. The average number of mistakes decreased from eighteen (out of sixty) to fourteen compared to about eight made by students who had studied the passage earlier and then had to translate it.

31 HEBREW

Authors: Roberta Stock, Vered Nachson, John Eisenberg, Avram Ziv, UIUC
Prerequisites: Registration in Modern Hebrew course or some knowledge of the language
Intended Use: Introductory Modern Hebrew
Actual Use: To be used in Fall, 1974, by students in Elementary Modern Hebrew (HEB 201, UIUC)
Lesson Evaluation: None
Descriptive Literature: Unpublished informative paper available from authors.

32 HISTORY

See COMPUTER MANAGED INSTRUCTION

33 ITALIAN

Syntax

Authors: M. Keith Myers and Enrico Gotti, UIUC
Prerequisites: None
Intended Use: Introductory Italian course
Actual Use: First year college Italian course (ITAL 101, 102, UIUC), and general use
Lesson Evaluation: None
Descriptive Literature: None

LATIN 34

Author: Richard Scanlan, UIUC
Prerequisites: Latin 101: None specified
Latin 102: Latin 101
Latin 113, 114: Latin 101, 102
Latin 104: Latin 101, 102, 103
Intended Use: Latin -- high school, junior college, college or university
Actual Use: 50 students in Beginning Latin (LAT 101, 102, UIUC); 15 students in Compositions (LAT 113, 114, UIUC); 30 students in Vergil (LAT 104, UIUC)
Lesson Evaluation: See reports in "Descriptive Literature."
Descriptive Literature: Scanlan, R., "CAI in Latin," Classical Journal, 66-3, 223-227 (February-March, 1971); "CAI in Foreign Languages at the University of Illinois," Foreign Language Annals, 4-4, 423 (May, 1971); "PLATO in Latin," Foreign Language Annals, 5-1, 84-89 (October, 1971)

LAW 35

Contract Law 35a
Author: Peter Maggs, UIUC
Prerequisites: Enrollment in first year Contracts course
Intended Use: First year law school
Actual Use: Students in Contracts course (LAW 301, UIUC)
Lesson Evaluation: Generally favorable student evaluation - detailed quantitative analysis by questionnaire.
Descriptive Literature: Informal writeup available

Government Regulation 35b
Author: Peter Maggs, UIUC
Prerequisites: Enrollment in Government Regulation course
Intended Use: Second or third year law school
Actual Use: Students in course on Government Regulation (LAW 350, UIUC)
Lesson Evaluation: Generally favorable informal student evaluation.
Descriptive Literature: Informal writeup available

Insurance Law 35c
Authors: Robert Keeton, Harvard Law School, (adapted by Peter Maggs, UIUC)
Prerequisites: Enrollment in Insurance Law course
Intended Use: Series of lessons for advanced law students to be used Spring, 1975,in course on Insurance Law (LAW 374, UIUC)
Actual Use: None at present
Lesson Evaluation: None
Descriptive Literature: None

LAW -continued-

35d

Introduction to Legal Research
Authors: James Block, Peter Maggs, UIUC
Prerequisites: Enrollment in first year law school
Intended Use: Course in techniques of legal research
Actual Use: Legal Writing and Research course (LAW 315, UIUC)
Lesson Evaluation: None
Descriptive Literature: Informal writeup available

35e

Patent Law
Authors: Peter Maggs, Robert Hammes, UIUC
Prerequisites: Enrollment in Patent Law course
Intended Use: Advanced law students
Actual Use: Patent Law course (LAW 332, UIUC)
Lesson Evaluation: None
Descriptive Literature: Informal writeup available

35f

Property Law
Author: Tom Morgan, UIUC
Prerequisites: Part of first year property course
Intended Use: First year law school
Actual Use: Students in first year property course (LAW 307, UIUC)
Lesson Evaluation: General favorable student reaction
Descriptive Literature: Informal writeup available

36 LIBRARY SCIENCE

Cataloging and Classification
Authors: Kathryn Luther Henderson, UIUC
Tschera Harkness Connell, UIUC (for Serial Cataloging lesson)
Prerequisites: Enrollment in Foundation of Librarianship or Cataloging and Classification
Intended Use: Graduate library science students
Actual Use: Over 200 students in courses in Foundations of Librarianship or Cataloging and Classification I (LIB S 400, 407, UIUC)
Lesson Evaluation: Student attitude very positive towards this method of instruction which forces a mastery of techniques and provides immediate reinforcement of learning.
Descriptive LIterature: In preparation

LINGUISTICS 37

Computational Linguistics 37a

Author: Chin-Chuan Cheng, UIUC
Prerequisites: Concurrent enrollment in Linguistic Analysis course (LING 403, UIUC)
Intended Use: Supplementary material for Linguisitc Analysis course (LING 403, UIUC)
Actual Use: 9 students
Lesson Evaluation: None at present
Descriptive Literature: None

Introduction to General Phonetics

Author: Chin-Chuan Cheng, UIUC
Prerequisites: None
Intended Use: Supplementary material for introductory general phonetics course
Actual Use: Students in courses in Introductory General Phonetics (LING 301, UIUC)
Lesson Evaluation: None
Descriptive Literature: None

Introductory Transformational Grammar 37b

Authors: Stephen Quigley, Keith Russell and others, UIUC
Prerequisites: None
Intended Use: College level
Actual Use: About 70 students participating in either Special Education of the Deaf (SP ED 319, UIUC), Special Problems in Syntax (SP CH 495d, UIUC) or summer workshops for Teachers of the Deaf at UIUC.
Lesson Evaluation: Feedback from students and teachers indicates most students enjoy the materials and have benefited greatly through increased understanding of linguistics. Materials are more beneficial when used in conjunction with classroom work where teachers can go more deeply into the theoretical implications of the PLATO materials. Teachers who have used the materials plan on continued class use in the future.
Descriptive Literature: None

MACHINIST TRAINING 38

Machinist Training Course 38a

Conversion of Metric to English
Solution of Right Triangles
Trouble Shooting Fuel Systems
Ordnance - Sergeant Game
Author: Frank C. Dare, Aberdeen Proving Ground

MACHINIST TRAINING -continued-

38b Machinist Training Course -continued-
Grinding Wheels
Identification of Toolbits
Milling Machines
Milling Machine Speed Feeds and Coolants
Author: R. A. Ritchie, Aberdeen Proving Ground

38c Indexing
Introduction to Tapers
Keys and Keyways
Author: Fred A. Hall, Aberdeen Proving Ground

38d Introduction to Threads
Ratio and Proportion
Thread Forms
Author: Bill R. Wofford, Aberdeen Proving Ground

38e Lathe Speed Feeds and Depth of Cut
Lathe Toolbits and Tool Holders
Unified and American Threads
Author: Stan Bury, Aberdeen Proving Ground

38f MI Drills
Author: C. E. Hill, Aberdeen Proving Ground

38g Reading the Micrometer
Spur Gears
Square and Acme Threads
Verniers
Author: Steve E. Smith, Aberdeen Proving Ground

Prerequisites: Not specified
Intended Use: Machinist course
Actual Use: Students in machinist course at Aberdeen Proving Ground
Lesson Evaluation: In preparation
Descriptive Literature: None

39 MATERIALS ENGINEERING

Author: Graham Brown
Prerequisites: Materials and Mechanics Laboratory Course (MATE 202, UICC)
Intended Use: Final course in Engineering common core
Actual Use: Being tested
Lesson Evaluation: None
Descriptive Literature: None

MATHEMATICS

Elementary 40a

Authors: PLATO Elementary Mathematics Curriculum Group, UIUC
Prerequisites: Not applicable
Intended Use: Fourth, fifth, sixth grades for National Science Foundation National trials
Actual Use: Second through ninth grade students
Lesson Evaluation: Official evaluation by Educational Testing Service, 1974-1976
Descriptive Literature: Lesson guides available. Cohen, D. and J. Glynn, "Description of Graphing Strand Lessons," CERL (June, 1974)

High School

Sample Algebra Lessons 40b

Authors: Janice Flake and David Davison, Florida State University, UIUC
Prerequisites: Junior high school mathematics
Intended Use: 9th grade mathematics. Sample drill and practice, tutorial, and number relationship lessons
Actual Use: 60 secondary education methods students and 30 high school students
Lesson Evaluation: Subjective evaluations given.
Descriptive Literature: None

Modelling and Simulation 40c

Authors: Janice Flake and Kenneth T. Travers (consultant), Florida State University, UIUC
Prerequisites: Basic high school algebra
Intended Use: Integration of modelling activities throughout high school mathematics
Actual Use: 6 participants: high school students, teacher education students
Lesson Evaluation: Subjective evaluations given.
Descriptive Literature: Prepared handout available

Community College

Basic Arithmetic

Signed Numbers and the Number Line 40d

Author: Tamar Abeliovitch, UIUC
Prerequisites: Whole number arithmetic and grade 5 reading level
Intended Use: GED preparation and community college basic mathematics courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

MATHEMATICS -continued-

Community College -continued-
Basic Arithmetic -continued-

40e

Ratios and Fractions
Introduction to Fractions
Fractions on the Number Line
Graphic Experiments with Fractions
Author: Keith D. Bailey, UIUC
Prerequisites: Whole number arithmetic
Intended Use: GED preparation - community college preparedness programs and basic mathematics courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

40f

Reducing Fractions
Author: Mitsuru Yamada, Malcolm X College
Prerequisites: Some knowledge of idea of a fraction
Intended Use: GED preparation and community college preparedness programs and basic mathematics courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: None

40g

Introduction to Ratios
Author: Barbara J. Lederman, UIUC
Prerequisites: Some knowledge of fractions
Intended Use: GED preparation and community college preparedness programs and basic mathematics courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: None

40h

Decimals
Author: Errol Magidson, Kennedy-King College
Prerequisites: Sixth grade reading level, knowledge of place value
Intended Use: GED preparation, community college basic mathematics courses and algebra courses
Actual Use: Over 200 students in Chicago City Colleges
Lesson Evaluation: Positive student attitudes
Descriptive Literature: Lesson guides available

40i

Percent
Author: Errol Magidson, Kennedy-King College
Prerequisites: Sixth grade reading level and knowledge of decimals
Intended Use: GED preparation, community college basic mathematics courses and algebra courses
Actual Use: Students in Chicago City Colleges
Lesson Evaluation: Positive student feedback
Descriptive Literature: None

MATHEMATICS -continued-

Community College -continued-
Basic Arithmetic -continued-

Denominate Numbers 40j
Author: Ben Lathan, Malcolm X College
Prerequisites: Arithmetic with fractions
Intended Use: Community college mathematics and technical-vocational courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

Square Roots 40k
Author: Tamar Abeliovitch, UIUC
Prerequisites: Knowledge of squares of real numbers
Intended Use: Community College mathematics courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

Algebra and Graphing
Multiplying and Factoring Algebraic Expressions 40l
Binomial Products
Authors: Paul Thompson and Robert J. Baillie, Parkland College and UIUC
Prerequisites: Basic arithmetic
Intended Use: Community college algebra courses
Actual Use: Students in Algebra course (MATH 111, Kennedy-King College)
Lesson Evaluation: Student attitudes were positive. Performance data not collected yet.
Descriptive Literature: Lesson guide available

Factoring Quadratic Polynomials 40m
Author: Louis V. DiBello, UIUC
Prerequisites: Multiplying binomials
Intended Use: Community college algebra courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

Linear Equations and Inequalities in One Unknown
Solving Linear Equations with Fractions 40n
Author: Mitsuru Yamada, Malcolm X College
Prerequisites: Fraction arithmetic
Intended Use: Community college algebra classes and GED preparation
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

MATHEMATICS -continued-

Community College -continued-
Algebra and Graphing -continued-

40o Graphing Linear Inequalities
Author: Don Beane, UIUC
Prerequisites: Basic arithmetic
Intended Use: Community college algebra courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

40p Word Problems with Linear Equations
Authors: Mitsuru Yamada and Gary Peltz, Malcolm X College
Prerequisites: Solving linear equations and eighth grade reading level
Intended Use: Community college algebra courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

40q Plotting Points in the Plane
Authors: Elementary Mathematics Project adapted by David L. Lassner, UIUC
Prerequisites: None
Intended Use: Community college algebra courses
Actual Use: Over 100 elementary school children
Lesson Evaluation: Student response favorable
No student performance data currently available.
Descriptive Literature: None

40r Linear Equations in Two Unknowns
Author: Barbara J. Lederman, UIUC
Prerequisites: Basic arithemetic, easy algebraic manipulations
Intended Use: Community college algebra courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

40s Quadratic Equations
Author: Louis V. DeBello, UIUC
Prerequisites: Multiplying and factoring algebraic expressions
Intended Use: Community college algebra courses
Actual Use: Small scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

MATHEMATICS -continued-

Community College -continued-
Algebra and Graphing -continued-

Systems of Simultaneous Equations 40t
Author: Barbara J. Lederman, UIUC
Prerequisites: Solve a linear equation in one and two variables; graph a straight line; use basic algebraic and arithmetic operations
Intended Use: Community college algebra
Actual Use: Students at Parkland College
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

Function Plotters 40u
Author: Keith Bailey, UIUC (includes plotting routine by Dan Sleator)
Prerequisites: None specified
Intended Use: Community college mathematics courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

Basic Geometry 40v
Author: Frances Kennedy, UIUC
Prerequisites: Sixth to eighth grade reading level
Intended Use: GED preparation, community college basic mathematics courses
Actual Use: Students at Chicago City Colleges
Lesson Evaluation: None at present
Descriptive Literature: None

Trigonometry
Similar Triangles 40w
Angle Measure
Authors: Paul Thompson and Robert J. Baillie, Parkland College and UIUC
Prerequisites: Basic algebra
Intended Use: Community college trigonometry courses and technical and vocational courses
Actual Use: Small-scale student testing
Lesson Evaluation: None
Descriptive Literature: None

Trigonometric Functions 40x
Author: Richard Neapolitan, Malcolm X College
Prerequisites: Basic algebra
Intended Use: Community college trigonometry courses and technical and vocational courses
Actual Use: Small-scale student testing
Lesson Evaluation: None
Descriptive Literature: None

MATHEMATICS -continued-

Community College -continued-

Trigonometry

40y Word Problems with Trigonometry

Author: Gary Peltz, Malcolm X. College
Prerequisites: Knowledge and fundamentals of trigonometry
Intended Use: Community college trigonometry classes
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: None

40z Slide Rule

Author: Barbara J. Lederman, UIUC (adapted from materials by Robert Grandey, Parkland College, programmed by David Lassner, UIUC)
Prerequisites: Basic arithmetic and exponents
Intended Use: Community college science and technical courses
Actual Use: Small-scale student testing
Lesson Evaluation: None at present
Descriptive Literature: Lesson guide available

40aa Sine Ratio Lessons

Author: Bill King, Navy Personnel Training and Research Laboratory

Mathematics Review

Author: Pat McCann, Navy Personnel Training and Research Laboratory

Prerequisites: Not specified
Intended Use: Experiments in educational psychology
Actual Use: Research
Lesson Evaluation: None
Descriptive Literature: None

MATHEMATICS -continued-

University

Linear Algebra 40ab

Inequalities

Author: Jeff Krivit, UIUC

No information available

Introduction to Vectors 40ac

Author: Bruce Sherwood, UIUC
Prerequisites: Trigonometry
Intended Use: College mathematics and physics students
Actual Use: Students in physics, mathematics, etc. and for demonstrations
Lesson Evaluation: None specified
Descriptive Literature: None

Introduction to Matrices 40ac$_1$

Author: Bruce Parrello, UIUC
Prerequisites: Freshman standing in mathematics
Intended Use: As part of reference library for college calculus work
Actual Use: Students in Calculus Computational Laboratory I, II (MATH 190, 191, UIUC)
Lesson Evaluation: Illustrates elementary concepts well. Has random exercises on multiplication and addition.
Descriptive Literature: None

Matrix Calculator 40ad

Author: Bruce Parrello, UIUC
Prerequisites: Knowledge about matrix concepts
Intended Use: As part of a reference library for college calculus work
Actual Use: Students in Calculus Computational Laboratory I, II (MATH 190, 191, UIUC); demonstrations
Lesson Evaluation: Very flexible desk calculator for up to (6,6) matrices.
Descriptive Literature: None

Solving a System of Linear Equations 40ae

Author: Axel Schreiner, UIUC
Prerequisites: Concepts of matrices
Intended Use: As part of reference library for college calculus work
Actual Use: A few students in Calculus Computational Laboratory III (MATH 192, UIUC) (partial version)
Lesson Evaluation: Proved useful for enlightening a hard-to-grasp algorithm.
Descriptive Literature: None

MATHEMATICS -continued-

University -continued-

Differential Calculus

40af Defining the Tangent to a Curve
Authors: P. Mitchell, A. Schreiner, UIUC
No information available

40ag How a Tangent Approximates a Curve
Author: Len Evans, Northwestern University
No information available

40ah Minimum/Maximum Problems
Author: Jon Harris, UIUC
No information available

40ai Newton's Method
Author: Kathie Ernie, UIUC
No information available

40aj Practicing Differentiation
Author: Axel Schreiner, UIUC
Prerequisites: Knowledge of differentiation rules
Intended Use: As part of reference library for college calculus work
Actual Use: Some students in Calculus Computational Laboratory I (MATH 190, UIUC)
Lesson Evaluation: Subjective only: "Useful aid in differentiating complex formulas."
Descriptive Literature: Schreiner, A., "A PLATO IV Lesson on Differentiation," Computer Science Report CS611, University of Illinois, Urbana, Illinois (December 1973); Schreiner, A., "Math 199 -- Computer Calculus," SIGCUE Bulletin (June, 1973)

Integral Calculus

40ak Rules of Integration
Author: Bruce Wassman, UIUC
No information available

40al Volumes of Solids of Revolution
Author: Dave Starling, UIUC
No information available

40am Exercising Indefinite Integration
Author: Philip Heeler, UIUC
No information available

MATHEMATICS -continued-

University -continued-

Analytic Geometry

General Curve Drawing 40an

Author: Axel Schreiner, UIUC

Prerequisites: Concurrent enrollment in a college mathematics course

Intended Use: As part of a reference library for college calculus work

Actual Use: 150 students in courses, Calculus Computational Laboratory I and II (MATH 190, 191, UIUC)

Lesson Evaluation: Subjective only: "Extremely appealing, prompts students' own investigations."

Descriptive Literature: Schreiner, A., "Math 199 -- Computer Calculus," SIGCUE Bulletin (June, 1973)

Plotting Problems Laboratory 40ao

Author: Axel Schreiner, UIUC

No information available

Surface Drawing

Author: Axel Schreiner, UIUC

Prerequisites: Some three space geometry, parametric equations to describe objects 40ap

Intended Use: As part of a reference library for college calculus work

Actual Use: Some students in Calculus Computational Laboratory I and II (MATH 190, 191, UIUC)

Lesson Evaluation: Seems to prompt students' own investigations.

Descriptive Literature: None

Miscellaneous

The Function: a sin (b(x +c)) 40aq

Author: M. Denneau, UIUC

No information available

The Function: ln x 40ar

Author: Mike Greenwood, UIUC

Prerequisites: Integration

Intended Use: As part of a reference library for college calculus work

Actual Use: Students in Calculus Computational Laboratory I, II (MATH 190, 191, UIUC)

Lesson Evaluation: Reasonable account of the properties of the ln function. Many integration-problems.

Descriptive Literature: None

The Constant π

Author: Peggy Delaney, UIUC 40as

No information available yet

41 MECHANICAL ENGINEERING

Author: John Chato, UIUC
Prerequisites: Thermodynamics, gas dynamics, heat transfer
Intended Use: Homework exercises for upperclass undergraduates, first year graduate students
Actual Use: Only demonstrations at present
Lesson Evaluation: None
Descriptive Literature: None

42 MEDICINE

42a Chromosome Karyotyping
Authors: Darlene Chirolas, Paul Tenezar, UIUC
Prerequisites: Basic college genetics
Intended Use: Freshmen medical students and college genetics students
Actual Use: To be used in fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

42b Compound Action Potential - Neuroscience
Author: Steve Giles, UIUC
Prerequisites: Knowledge of basic peripheral nervous systems
Intended Use: Freshmen medical students and graduate students in physiology
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

42c Female Reproductive Physiology
Authors: Darlene Chirolas, Benita Katzenellenbogen, Richard Rende, UIUC
Prerequisites: Basic reproductive physiology
Intended Use: Freshmen medical students
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

42d Male Reproductive Physiology
Authors: Benita Katzenellenbogen, Richard Rende, UIUC
Prerequisites: Basic endocrinology
Intended Use: Freshmen medical students
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

MEDICINE -continued-

Genetic Counselling **42e**

Authors: Darlene Chirolas, Michael Grossman, UIUC
Prerequisites: Basic genetics, some clinical training
Intended Use: Medical students, graduate students
Actual Use: Students in Human Genetics (ZOOL 315, UIUC) and first year medical students from School of Basic Medical Science
Lesson Evaluation: Good acceptance by the students.
Descriptive Literature: None

Genetic Risk Estimates **42f**

Authors: Darlene Chirolas, William Daniel, UIUC
Prerequisites: Basic undergraduate genetics; probability theory
Intended Use: Medical students, graduate students
Actual Use: Students in Human Genetics (ZOOL 315, UIUC) and first year medical students from School of Basic Medical Science
Lesson Evaluation: Pretest, post-test, and data taken during student use indicated good acceptance after the addition of some vocabulary and help sequences.
Descriptive Literature: None

Gram Negative Rods **42g**

Authors: Michael Gabridge, T. Ngo, UIUC
Prerequisites: Basic College Microbiology
Intended Use: Freshman medical students
Actual Use: Freshmen medical students and microbiology undergraduate and graduate students
Lesson Evaluation: Incomplete (pretest and post-test are under construction). Good acceptance by students.
Descriptive Literature: None

Gram Positive Cocci **42h**

Authors: Michael Gabridge, Kenneth Pechman, UIUC
Prerequisites: Basic Microbiology
Intended Use: Freshmen medical students
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

MEDICINE -continued-

42i pH and Acid-Base Balance
Author: C. Coe Agee, UIUC
Prerequisites: Not specified
Intended Use: First year medical students
Actual Use: Freshmen medical students
Lesson Evaluation: None
Descriptive Literature: None

42j Physician Self-Assessment
Author: Louis Bloomfield, UIUC
Prerequisites: Not specified
Intended Use: Physicians, medical students
Actual Use: Not specified, but has been experimentally tried
Lesson Evaluation: None
Descriptive Literature: None

42k Schematic Approach to Heart Disease
Authors: Charlene Thompson, Les Jones, Daniel Bloomfield, UIUC
Prerequisites: Pre-med college program
Intended Use: First year medical students
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

42l ABO Blood Typing
Author: Bob LaCoe, Sheppard Air Force Base
Prerequisites: None specified
Intended Use: Lesson in problem-oriented curriculum for physician's assistant course.
Actual Use: To be used by students in School of Health Care Sciences, Sheppard Air Force Base.
Lesson Evaluation: None at present
Descriptive Literature: None

42m Diabetes
Author: John Wilcox
Prerequisites: None
Intended Use: For diabetics and their family members, and nurses
Actual Use: Being piloted
Lesson Evaluation: None at present
Descriptive Literature: In preparation

MICROBIOLOGY 43

Cell Growth 43a

Author: Rosanne Francis, UIUC
Prerequisites: None
Intended Use: Freshmen college students in Experimental Microbiology (MCBIO 101, 201, UIUC)
Actual Use: Students from Experimental Microbiology 101, 201, 301 courses used for developing program only
Lesson Evaluation: Not completed
Descriptive Literature: None

Gram Negative Rods 43b

Authors: Michael Gabridge, T. Ngo, UIUC
Prerequisites: Basic College Microbiology (MCBIO 101, 201, UIUC)
Intended Use: Freshmen medical students
Actual Use: Freshmen medical students and microbiology undergraduate and graduate students
Lesson Evaluation: Incomplete (pretest and post-test are under construction). Good acceptance by students.
Descriptive Literature: None

Gram Positive Cocci 43c

Authors: Michael Gabridge, Kenneth Pechman, UIUC
Prerequisites: Basic Microbiology
Intended Use: Freshmen medical students
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

Serial Dilution Problem 43d

Authors: Bette Vidrine, Gary Hyatt, UICC
Prerequisites: General biology
Intended Use: University undergraduate courses
Actual Use: None as yet
Lesson Evaluation: None
Descriptive Literature: None

MUSIC 44

Conducting and Score Reading 44a

Author: Dean Wade, UIUC
Prerequisites: Enrollment in Elements of Conducting or other conducting classes (MUSIC 142, UIUC)
Intended Use: Improvement of score reading skills
Actual Use: Students in Elements of Conducting (MUSIC 142, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: None

MUSIC -continued

44b

Elementary Music Fundamentals

Authors: G. David Peters, Robert Placek and others, UIUC

Prerequisites: Enrollment in Music for Elementary Teachers I or II (MUSIC 240, 241, UIUC)

Intended Use: Individualized review of basic music fundamentals

Actual Use: Music for Elementary Teachers I and II (MUSIC 240, 241, UIUC), 30 students per semester for five semesters and one summer session

Lesson Evaluation: Well received by students and instructors.

Descriptive Literature: Research and Development in CAI in Music at the University of Illinois, School of Music, University of Illinois, Urbana, Illinois (1973)

44c

Elementary School Music

Elementary String Instruction

Authors: G. David Peters and Dan Lind, UIUC

Prerequisites: Beginning knowledge of violin/viola fingerings and ability to read treble/alto clef

Intended Use: Elementary school string classes

Actual Use: Experimental use in Champaign-Urbana string programs with 5 - 10 young students

Lesson Evaluation: Effective drill routine with emphasis upon the second finger placement on all strings.

Descriptive Literature: None

44d

Music Baseball Game

Author: G. David Peters, UIUC

Prerequisites: None

Intended Use: Fifth through eighth grade general music

Actual Use: Fall, 1974

Lesson Evaluation: None

Descriptive Literature: None

44e

General

Music Game: 5 x 7

Authors: Gariano Hawkins, George Weimer, UIUC

Prerequisites: Junior High School

Intended Use: General Music

Actual Use: Experimental Use with 7th and 8th Grades in Urbana

Lesson Evaluation: Preliminary testing at University level by general music teachers (graduate level), favorable response.

Descriptive Literature: None

MUSIC -continued-

Harmony 44f

Authors: G. David Peters and Robert Rickman, UIUC
Prerequisites: Knowledge of basic music theory rules
Intended Use: Demonstration of PLATO capability to program music theory exercises
Actual Use: Used for demonstrations for four semesters
Lesson Evaluation: Questionnaire incorporated into close of lesson indicated acceptance of the demonstration with main strength listed as the 'individualized approach.'
Descriptive Literature: Research and Development in CAI in Music at the University of Illinois, School of Music, University of Illinois, Urbana, Illinois (1973)

Instrumental Music Instructional Methods 44g

Author: G. David Peters, UIUC
Prerequisites: Enrollment in Teaching of Instrumental Music (MUSIC 244, UIUC), senior standing in music education
Intended Use: Upperclass college level
Actual Use: Over 80 students in Teaching of Instrumental Music (MUSIC 244, UIUC)
Lesson Evaluation: Showed pretest and post-test gain in test scores. Positive student reaction.
Descriptive Literature: Report available from author.

Music Student Teaching 44h

Author: G. David Peters, UIUC
Prerequisites: Enrollment in Music Education section, (SE ED 241, UIUC)
Intended Use: College level student teachers in music education
Actual Use: 25 students per semester, last six semesters
Lesson Evaluation: Positive student reaction.
Descriptive Literature: Research and Development in CAI in Music at the University of Illinois, School of Music, University of Illinois, Urbana, Illinois (1973)

Supplementary Instrument Instruction 44i

Authors: David Peters, Edward Sandor, Thurman Douglas, Charles Yassky and David Requa, UIUC
Prerequisites: Enrollment in courses in Woodwind or Brass Instruments or Instrumental Music methods courses (MUSIC 171, 172, 235, 244, UIUC)
Intended Use: Course content test for pedagogy and procedures in teaching
Actual Use: Students in music courses (MUSIC 171, 172, 235, 244, UIUC)
Lesson Evaluation: Effective as an evaluation device for the course with data analysis of student strengths and weaknesses.
Descriptive Literature: None

MUSIC -continued-

44j Percussion Terminology

Authors: Dean Wade, Frederick Fairchild, UIUC
Prerequisites: Percussion major in music or music education
Intended Use: Drill instruction
Actual Use: Students enrolled in percussion courses (MUSIC 196, 396, UIUC)
Lesson Evaluation: Students showed great improvement in a pretest and post-test evaluation. Lesson being expanded to cover both membranophones and idiophone terms in French, German, English and Italian.
Descriptive Literature: None

44k Tests and Measurements

Authors: Richard Colwell and George Weimer, UIUC
Prerequisites: Junior or graduate standing in music education, knowledge of statistics
Intended Use: Tests and Measurements in Music Education course (MUSIC 343, UIUC)
Actual Use: 15 students per semester plus independent study
Lesson Evaluation: None
Descriptive Literature: None

45 NURSING

45a Mathematics for Nurses
Diagnostic Mathematics Test for Nurses

Author: Pat Tymchyshyn, Parkland College
Prerequisites: High school diploma or GED
Intended Use: Evaluation of mathematical skills of students applying for ADN, BS programs or LPN mathematics course
Actual Use: To be used in fall for all students applying to ADN and LPN programs
Lesson Evaluation: None
Descriptive Literature: None

45b Mathematical Practice for Nursing Education

Authors: Pat Tymchyshyn, Jean Helper, Parkland College
Prerequisites: High school diploma
Intended Use: Supplement to Nursing Fundamentals course for nursing students in LPN, ADN BS Programs, In-service Nursing, Nurse Refresher Course
Actual Use: AD Nursing students in fundamentals course, fall quarter, 1973
Evaluation: Students given practice in interchanging units of metric apothecary and household systems. Students requested a help sequence be written for those problems they could not answer. Identified students who had difficulty answering problems involving ratios and proportions.
Descriptive Literature: None

NURSING -continued-

Mathematics for Nurses -continued- **45c**

Mathematics of Drugs and Solutions - Metric and Apothecaries' Systems

Authors: Maryann Bitzer, Martha Boudreaux, Mercy Hospital School of Nursing

Prerequisites: High school mathematics

Intended Use: First year associate degree or BS degree nursing students

Actual Use: Associate degree nursing students

Lesson Evaluation: Identifies mathematical weaknesses in students. Provides drill, review and practice in preparation for study of pharmacology of nursing.

Descriptive Literature: Bitzer, M. D., M. Boudreaux, R. A. Avner, "Computer-based Instruction of Basic Nursing Utilizing Inquiry Approach," CERL Report X-40 (February, 1973)

Maternal Child Health **45d**

Fetal Circulation

Authors: Pat Tymchyshyn, Jean Helper, Parkland College

Prerequisites: Nursing Fundamentals Course

Intended Use: Supplement to Maternal Child Health Nursing for Nursing students in LPN, ADN, BS programs

Actual Use: ADN students in Maternal Child Health Nursing, spring quarter, 1974

Lesson Evaluation: Students felt this method superior to texts or charts. An addition to this lesson was recommended to show the effect on the infant when the adaptive vessels do not close.

Descriptive Literature: None

Postpartum Involution **45e**

Authors: Pat Tymchyshyn, Jean Helper, Parkland College

Prerequisites: Nursing Fundamentals Course

Intended Use: Nursing students in LPN, ADN or BS programs, and for Hospital In-Service Education or Continuing Education

Actual Use: ADN students in Maternal Child Health Nursing, winter and spring quarters

Lesson Evaluation: Useful in orienting students to postpartum clinical units. Student reaction was very positive.

Descriptive Literature: None

NURSING -continued-

45f

Pharmacology for Nurses
Principles of Drug Therapy
Authors: Mary Ann Bitzer, Martha Boudreaux, Mercy Hospital School of Nursing
Prerequisites: High school diploma
Intended Use: Supplement to pharmacology course for nurses in ADN curriculum
Actual Use: Nursing students, College of Dupage, spring quarter
Lesson Evaluation: None
Descriptive Literature: Bitzer, M. D., M. Boudreaux, R. A. Avner, "Computer-based Instruction of Basic Nursing Utilizing Inquiry Approach," CERL Report X-40 (February, 1973)

46

PHARMACY AND PHARMACAL SCIENCES

46a

General
Router for Pharmacy Students and Author Demonstration Index
Author: Steve R. Deiss, Purdue University at Lafayette
Prerequisite: Pharmacy student or author
Intended Use: For college students
Actual Use: Five courses, 200 students and several authors
Lesson Evaluation: Greatly reduced student confusion and helped to automate student usage management.
Descriptive Literature: Deiss, S. R., "The Road to Production CAI...," Proceedings of the First Indiana University Computer Network Conference on Computer Related Curriculum Materials (1974)

46b

Physical Pharmacy
Prediction of Drug Solubility
Author: Steve R. Deiss, Purdue University at Lafayette
Prerequisites: Organic chemistry
Intended Use: Second or third year college
Actual Use: 40 students in one course
Lesson Evaluation: In progress. Preliminary student feedback was positive.
Descriptive Literature: None

46c

Effect of pH on Partition Coefficient
Author: Steve R. Deiss, Purdue University at Lafayette
Prerequisites: General chemistry and/or analytical chemistry
Intended Use: Second and third year college
Actual Use: 150 students in one course
Lesson Evaluation: Has undergone much formative evaluation. Student questionnaires indicated very positive response and a desire for more such simulations.
Descriptive Literature: None

PHARMACY AND PHARMACAL SCIENCES -continued-

Physical Pharmacy -continued-

Review of Graphing 46d

Author: Steve R. Deiss, Purdue University at Lafayette
Prerequisites: High school algebra with logarithms
Intended Use: Any level beyond junior high school
Actual Use: Forty students, one course
Lesson Evaluation: In progress. Preliminary student feedback was positive.
Descriptive Literature: None

Kinetics of Aspirin Hydrolysis 46e

Author: Steve R. Deiss, Purdue University at Lafayette
Prerequisites: Freshman general chemistry
Intended Use: Second or third year course
Actual Use: 12 students, one course
Lesson Evaluation: In progress. Preliminary student feedback was positive.
Descriptive Literature: None

Medicinal Chemistry 46f

Author: Steve R. Deiss, Purdue University at Lafayette
Prerequisites: Organic chemistry
Intended Use: Advanced undergraduate and graduate in chemistry or pharmacy
Actual Use: 12 students in spring, 170 students in fall, 1974
Lesson Evaluation: In progress
Descriptive Literature: None

PHOTOGRAPHY 47

Basic Camera Operation

Author: John L. Woods, UIUC
Prerequisites: Basic understanding of an adjustable camera
Intended Use: High school, college and adulat education -- anyone who wants to better understand how to use an adjustable camera.
Actual Use: 13 students in Photography in Agriculture (AGCOM 240, UIUC); other photography courses and in-service training of Cooperative Extension Service staff.
Lesson Evaluation: Lesson carefully evaluated in order to improve its design. Student reaction mostly positive indicating the lesson would be helpful in improving their capability of operating a camera. Also positive towards the suggestion of more use of PLATO in Agricultural Communications courses.
Descriptive Literature: Woods, J. L., "Welcome to the Wonderful World of Photography," a guide for students using the PLATO IV lesson (1973) (available from James Evans, 58 Mumford Hall); Pennington, F., "A PLATO Evaluation," College of Education, UIUC, Urbana, Illinois (April, 1973)

48 PHYSICS

48a

General Service Lessons
Talking to PLATO
Calculator and f(x) Plotter
Root Finder, f(x) = 0
Mini-Calculator
Numerical Integration and Least Squares
Plotters: log, f(t) vs g(t)
Matrix Routines
Author: Carol Bennett, UIUC

Fourier Synthesis and Analysis
Author: Donald Shirer, Valparaiso University

GRAFIT Computer Programming Facility
Author: Bruce Sherwood, UIUC

Plotters: $r(\theta)$
Author: Dennis Kane, UIUC

Plotters: f(x,y)
Author: A. Luehrman, UIUC

Three-Dimensional Plotter and Projections
Author: M. Deiss, UIUC

Prerequisites: None specified
Intended Use: College physics students
Actual Use: Several hundred students on a reference and study basis
Lesson Evaluation: Improvements and additions made from suggestions and needs of users.
Descriptive Literature: None

48b

Intermediate Light
Ray Tracing Through a Single Spherical Refracting Surface
Author: D. C. Sutton, UIUC

Optical Path Length as a Function of Displacement
Author: Steve Hohn, UIUC

Prerequisites: Elementary physics sequence (PHYCS 106, 107, 108, UIUC)
Intended Use: Junior, senior, graduate college level
Actual Use: Homework aid for Intermediate Light (PHYCS 371, UIUC)
Lesson Evaluation: None
Descriptive Literature: None

PHYSICS -continued-

Intermediate Light -continued- **48c**

Classical Mechanics

Authors: Bruce Sherwood, Carol Bennett, Dennis Kane and others, UIUC

Prerequisites: Concurrent calculus course

Intended Use: Freshman university science and engineering students

Actual Use: 25 student experimental sections in Mechanics course (PHYCS 106, UIUC, and PHYCS 221, Kennedy-King College)

Lesson Evaluation: Student attitudes from questionnaires very positive.

Descriptive Literature: Sherwood B., "Free-Body Diagrams (A PLATO lesson)," American Journal of Physics, 39, 1199 (1971); Sherwood, B., C. Bennett, J. Mitchell, and C. Tenczar, "Experience with a PLATO Mechanics Course," Proceedings of the Conference on Computers in the Undergraduate Curriculum, Dartmouth College, Hanover, NH, June 1971; Sherwood, B., "Judging Algebraic Expressions and Equations," Computer Notes Section of American Journal of Physics, 40, 1042 (1972)

Graphical Kinematics **48d**

Author: E. B. McNeil

Prerequisites: Brief introduction to graphical calculus

Intended Use: Any elementary physics course

Actual Use: Courses in General Physics for scientists (Mechanics) and Classical Physics for Engineers (Mechanics) (PHYS 111, 131, UICC)

Lesson Evaluation: Preliminary evaluation indicates about one-third increase in correct answers on test questions of graphical differentiation and about one-fifteenth an increase in score on the kinematics hour exam compared to pre-PLATO classes with identical exam questions.

Descriptive Literature: None

Elementary Electricity and Magnetism **48e**

Author: Carol Bennett, UIUC

Prerequisites: Elementary classical mechanics

Intended Use: Undergraduate college physics

Actual Use: Elementary Electricity and Magnetism (PHYCS 107, UIUC)

Lesson Evaluation: Positive student reaction. The 'charge' game has been widely used and is enjoyed by students

Descriptive Literature: Bennett, C. D., "Simple Visual Exercises with Electric Forces and Fields," American Journal of Physics, 41-1, 135 (1973)

PHYSICS -continued-

Intermediate Light -continued-

48f Waves, Sound, Optics and Modern Physics

Author: Carol Bennett, UIUC
Prerequisites: Courses in Elementary Classical Mechanics and Elementary Electricity and Magnetism
Intended Use: Undergraduate college physics
Actual Use: 15 students. Experimental sections in Modern Physics course (PHYSCS 108, UIUC) plus many other students on a voluntary basis
Lesson Evaluation: Qualitative evidence indicates effectiveness and enthusiastic use by students.
Descriptive Literature: None

48g Elementary Nuclear Physics

Author: Donald Shirer, Valparaiso University
Prerequisites: Used concurrently with any standard introductory physics text
Intended Use: Introductory college level drill
Actual Use: College freshmen - juniors at Valparaiso University
Lesson Evaluation: Insufficient data so far
Descriptive Literature: None

48h Quantum Mechanics - Intermediate and Advanced

Author: Carol Bennett, UIUC
Prerequisites: Elementary quantum mechanics
Intended Use: Undergraduate college physics
Actual Use: Intermediate and graduate level quantum mechanics courses
Lesson Evaluation: Qualitative evidence indicates effectiveness and enthusiastic use by students.
Descriptive Literature: Bennett, C. D., "Computer-based Education Lessons for Undergraduate Quantum Mechanics," Proceedings of the 1972 Conference on Computers in Undergraduate Curricula, Atlanta, Georgia (June, 1972)

49 PILOT TRAINING

Authors: S. Trollip, J. Moll, P. Jones, UIUC
Prerequisites: Not specified
Intended Use: Primary training course (UI AVI 101, UIUC)
Actual Use: Tested on about 30 students to remove ambiguities and generally improve the material; used officially for students in courses in Spring, 1974
Lesson Evaluation: Favorable response substantiates the belief in the importance of the use of CAI for improvement in the training and certification of pilots.
Descriptive Literature: Trollip, S. R. and S. N. Roscoe, "Computer-Assisted Instruction in Pilot Training and Certification," Proceedings of the Sixteenth Annual Meeting of the Human Factors Society, 357-359 (October, 1972)

POLITICAL SCIENCE 50

Authors: John Peters and Donald Emerick, University of Nebraska, UIUC
Prerequisites: Not specified
Intended Use: Introduction to American Government
Actual Use: Students in course in Principles of Political Science (POL S 191, UIUC)
Lesson Evaluation: Student evaluation of four instructional modes in the lesson (computer-based games, in-class simulation, lectures, discussion sessions) favored computer-based games as most interesting, challenging, pleasant and useful.
Descriptive Literature: Coombs, F. and J. Peters, "PLATO and the Teaching of Political Science," paper presented at the Tenth Annual Symposium of the National Gaming Council, Ann Arbor, Michigan (October, 1971)

POPULATION DYNAMICS 51

Authors: Paul Handler and others, UIUC
Prerequisites: None
Intended Use: Post graduate, college, junior college, minicourses and one to five day seminars, and senior level high school.
Actual Use: As stated in 'intended use'
Lesson Evaluation: Qualitative data indicates that population awareness and level of understanding can be significant within one-two hours use of the programs. Non-CAI modes of instruction would require ten times as many hours. In addition, the program can be and has been extended to groups which would never have been exposed to this type of social stimulation since it requires no previous demographic experience nor mathematical ability.
Descriptive Literature: Booklets available from author describing seminars in population dynamics, brochures, workbooks, and user's manuals.

52 PSYCHOLOGY

52a Descriptive Statistics
Tests and Measurements
Authors: Jerry L. Cohen and others, UIUC
Prerequisites: Variable
Intended Use: College level
Actual Use: UIUC courses: Statistical Thinking in Psychology (PSYCH 135), Statistical Methods in Psychological Research (PSYCH 235), Quantitative Methods I and II (PSYCH 306, 307), Experimental Psychology I (PSYCH 330), Research Methods in Social Psychology (PSYCH 332), Psychological Tests and Measurements (PSYCH 390), Quantitative Methods in Labor and Industrial Relations (LIR 493)
Lesson Evaluation: Objective rating scales-high ratings from student users.
Descriptive Literature: None

52b Motivational Control System
Neural Network Demonstration
Psychology Experiments -- Short Term Memory Experiment
Authors: Jerry L. Cohen and others, UIUC
Prerequisites: Variable
Intended Use: College level
Actual Use: Several hundred Psychology students in courses: Introduction to Experimental Psychology, Perception and Sensory Processes, Experimental Psychology I (PSYCH 103, 230, 330, UIUC)
Lesson Evaluation: Very helpful and useful
Descriptive Literature: None

52c Social Psychology
Authors: Jerry L. Cohen and others, UIUC
Prerequisites: Variable
Intended Use: College level
Actual Use: Several hundred students in Introduction to Social Psychology course and Interpersonal Processes course (PSYCH 201, 354, UIUC)
Lesson Evaluation: Objective scale ratings and student comments.
Descriptive Literature: None

52d Operant Conditioning Laboratory
Author: R. A. Avner, UIUC
Prerequisites: Introduction to basic terminology and concepts of operant learning
Intended Use: Introductory courses in learning or animal behavior (high school or college)
Actual Use: Over one hundred students in biology, education and psychology classes at college level
Lesson Evaluation: Student attitude data now being collected. Lesson provides experience not normally provided in the courses, thus qualitative evaluations of learning differences are not easily made.
Descriptive Literature: Hyatt, G. W. and R. A. Avner, "Interactive Teaching Modules for Animal Behavior on the PLATO IV System," The Physiologist, 16-4, 649-657 (November, 1973)

READING 53

Authors: PLATO Elementary Reading Curriculum Group, UIUC
Prerequisites: None specified
Intended Use: Kindergarten and first grade acquisition of beginning reading skills
Actual Use: Kindergarten and first grade students
Lesson Evaluation: Since modules are 'free-standing,' teacher can put together sequences of activities for individual students. There is also a predefined curriculum available that provides automated diagnosis, prescription and instruction. Most modules generate analytic data about student performance which is available via the terminal to the classroom teacher.
Descriptive Literature: Risken, J. and C. E. Webber, "A Computer-based Curriculum Management System," Educational Technology (to be published, 1974); Obertino, P. "An Overview of the PLATO Reading Project," Educational Technology, XIV-2, 8-13 (February, 1974); Yeager, R., "A Decision Model to Handle Student Errors," Educational Technology (to be published, 1974); Risken, J., "Written Composition and The Computer," Educational Technology, XII-6, 46-51 (June, 1972); Lutz, K. A., "Multimode Knowledge of Results in PLATO Courseware," CERL Report X-38, (January, 1973)

RETAIL TRAINING 54

Authors: Kitty Breen and Eleanor Rud, Montgomery Ward Company
Prerequisites: Some experience with the buying process
Intended Use: Buyer training level
Actual Use: Three programs well received by users. Several other programs under development.
Lesson Evaluation: None
Descriptive Literature: None

55 RUSSIAN

55a Reading Lessons

Authors: Constance Curtin and others, UIUC
Prerequisites: None
Intended Use: Beginning undergraduate Russian and beginning graduate reading course
Actual Use: Beginning Reading Courses, I, II (RUSS 121, 122, UIUC), and Beginning Russian for Graduate Students (RUSS 400, 401 UIUC)
Lesson Evaluation: Comparison for several semesters of non-PLATO to PLATO sections of the course show: 1) Non-PLATO section required three times longer out-of-class preparation time; 2) Few PLATO students needed attendance at every scheduled class to complete the material; 4) In almost every case PLATO students completing all the PLATO lessons received A's or B's in the course, measured by non-PLATO connected tests based on the textbook.
Descriptive Literature: Curtin, C., D. Clayton, C. Finch, D. Moor, L. Woodruff, "Teaching the Translation of Russian by Computer," Modern Language Journal, LVI-6, 354-360 (October, 1972)

55b Syntax

Authors: M. Keith Myers and Maria Merkelo, UIUC
Prerequisites: Not specified
Intended Use: Introductory Russian
Actual Use: First year college Russian course (RUSS 101, 102, UIUC)
Lesson Evaluation: None at present
Descriptive Literature: None

55c Vocabulary for Tourists

Authors: M. Keith Myers, Nick Samijlenko, UIUC
Prerequisites: Not specified
Intended Use: Vocabulary for tourists to Russia
Actual Use: PLATO tourists in Russia
Lesson Evaluation: None at present
Descriptive Literature: None

56 SOCIAL WELFARE

Author: Marilyn Flynn, UIUC
Prerequisites: None
Intended Use: Foundation course in social policy
Actual Use: Several hundred students in Social Welfare Policy and Services I course (SOC W 310, UIUC) and public assistance worker trainees
Lesson Evaluation: PLATO as effective as classroom lecture over same content.
Descriptive Literature: Flynn, M., "Computer-based Instruction in Social Policy: Results of a One-year Trial" (March, 1974)

SOCIOLOGY 57

Author: Phyllis Ewer, UICC
Prerequisites: Basic algebra
Intended Use: College level
Actual Use: Students in Introductory Sociological Statistics course (SOC 201, UICC)
Lesson Evaluation: Incomplete at present
Descriptive Literature: None

SPANISH 58

Introduction to Spanish via the "GLOPAR" Method 58a
Author: Armando Armengol, UIUC
Prerequisites: None
Intended Use: First quarter Spanish course at UICC
Actual Use: Elementary Spanish (SPAN 101, UICC)
Lesson Evaluation: Available on request.
Descriptive Literature: None

Verb Conjugation Drills 58b
Vocabulary Lesson
Author: Armando Armengol, UIUC
Prerequisites: Current enrollment in a beginning Spanish course
Intended Use: First year college Spanish
Actual Use: Elementary Spanish (SPAN 101, UICC)
Lesson Evaluation: Available on request.
Descriptive Literature: None

Syntax 58c
Authors: M. Keith Myers, Armando Armengol, UIUC
Prerequisites: Enrollment in first year Spanish course
Intended Use: First year college Spanish
Actual Use: Elementary Spanish (SPAN 101, 102, UIUC)
Lesson Evaluation: Favorable student response.
Descriptive Literature: None

SPEECH AND HEARING SCIENCE 59

Audiology 59a
Authors: James H. Wilson, Herbert Gould, UIUC
Prerequisites: Basic hearing science
Intended Use: Supplement to college level courses in audiology
Actual Use: Pilot testing and demonstration at American Speech and Hearing Association convention, October, 1973. More widely used in 1974.
Lesson Evaluation: Qualitative positive comments.
Descriptive Literature: None

SPEECH AND HEARING SCIENCE -continued-

59b

Phonetics
Simulation of Articulation
Authors: James H. Wilson (Elaine P. Paden, consultant), UIUC
Prerequisites: Introduction to IPA
Intended Use: Supplement to college level courses in phonetics for speech and hearing clinicians, and in phonology
Actual Use: General use, and for over 100 students in General Phonetics course (SPSHS 109, 301, UIUC)
Lesson Evaluation: Qualitative positive comments.
Descriptive Literature: Paden, E., and J. Wilson, "Computer-Assisted Instruction as an Aid in Teaching Courses in Phonetics," paper presented at American Speech and Hearing Association convention, Detroit, Michigan (October 12, 1973)

59c

Introductory Audio Drills and Syllable Transcription
Authors: James H. Wilson, Elaine P. Paden, UIUC
Prerequisites: None
Intended Use: Supplement to college level courses in phonetics for speech and hearing clinicians
Actual Use: One section of 15 students in General Phonetics (SPSHS 301, UIUC) and general availability to the department
Lesson Evaluation: Data indicate that the more intelligent students learn the material faster than when presented in class. Students find it "enjoyable and an efficient use of their time."
Descriptive Literature: None

59d

Reading Drill
Authors: James H. Wilson and Elaine P. Paden, UIUC
Prerequisites: None
Intended Use: Supplement to course in phonetics
Actual Use: Students in General Phonetics courses (SPSHS 109, 301, UIUC)
Lesson Evaluation: Data indicate that simple drill lessons like this are well received.
Descriptive Literature: None

59e

Organogenetic Features
Author: James H. Wilson, UIUC
Prerequisites: Introduction to IPA
Intended Use: Reinforcement and applications of lecture material about properties of speech sounds
Actual Use: Students in General Phonetics courses (SPSHS 109, 301, UIUC)
Lesson Evaluation: Qualitative positive comments.
Descriptive Literature: None

59f

Phonetic Crossword Puzzles
Author: James H. Wilson, UIUC
No information available as yet

SPEECH AND HEARING SCIENCE -continued-

Phonology 59g

Authors: James H. Wilson (Elaine P. Paden, consultant), UIUC
Prerequisites: Some basic knowledge of articulation, familiarity with IPA
Intended Use: Supplement to college level courses in phonetics for speech and hearing clinicians, and in phonology
Actual Use: Students in Special Problems course (SPSHS 495, UIUC)
Lesson Evaluation: Limited number of positive comments.
Descriptive Literature: None

STATISTICS 60

Statistical Laboratory 60a

Author: R. A. Avner, UIUC
Prerequisites: High school algebra
Intended Use: Provides interactive demonstrations of selected statistical concepts
Actual Use: Students in Education and Psychology courses
Lesson Evaluation: None
Descriptive Literature: None

Statistical Service Package 60b

Author: R. A. Avner, UIUC
Prerequisites: Introductory course in statistics
Intended Use: Provides statistical computation which may be used by courses as a laboratory tool
Actual Use: Students in education and psychology courses and PLATO users (about 40 hours per month)
Lesson Evaluation: None
Descriptive Literature: Manual in preparation

SWEDISH 61

Syntax

Authors: M. Keith Myers, UIUC, Anita Kollerbauer, University of Stockholm
Prerequisites: None
Intended Use: First year Swedish course (SCAN 101, UIUC)
Actual Use: Fall, 1974
Lesson Evaluation: None
Descriptive Literature: None

TECHNICAL DRAFTING

62

Multiview Projection
Crossword Puzzle on Drafting Terminology
Engineering Terms

Author: Ben Lathan (with Mitsuru Yamada for 'Engineering Terms')
Malcolm X College

Prerequisites: Introductory study of orthographic projection

Intended Use: Junior college courses on technical drafting

Actual Use: Students in course on Engineering Graphics and Introduction to Design (ENG 131, Malcolm X College)

Lesson Evaluation: Generally favorable student response with typical reply, "Lesson helped clarify concepts which I was unable to get from textbook."

Descriptive Literature: Student/Instructor guides available from author.

63

URBAN PLANNING

Social Policy Impact Models

Author: Carl Patton, University of California at Berkeley

Prerequisites: None specified

Intended Use: Introduction to urban planning, undergraduates and graduates.

Actual Use: Students in Planning Analysis (UP 376, UIUC) and an Undergraduate Seminar (UP 199, UIUC); numerous demonstrations

Lesson Evalaution: Responses were analyzed both qualitatively and quantitatively from student and public participants. Although many questions are still unanswered, this experiment has shown that participation in a simulation via computer-based communications results in changes in the opinions of the participants. It has also shown that participants will express their opinions to a computer-based system and, in fact, often seem to enjoy doing so.

Descriptive Literature: Anderson, J. R., W. Lienesch, C. Patton, "An Experiment in the Use of Computer-Based Communications to Explore Social Policy Questions," paper presented to the American Institute of Planners National Conference, Atlanta, Georgia (October, 1973).

64

VEHICULAR TRAINING

Vehicular Training Course

64a

Battery Hydrometer Drill
Evaporative Emissions

Author: Richard Bourn, Chanute Air Force Base

64b

Engine Classification
Crank-Motor Diagnosis
Cranking Motors

Author: Joe Dallman, Chanute Air Force Base

VEHICULAR TRAINING -continued-

Vehicular Training Course -continued-
Crankcase Ventilation 64c
Author: Carl Dennis, Chanute Air Force Base

Fuel Pump Volume Test 64d
Electrical Fundamentals (Atoms and Charges)
Voltage
Electrical Current
Fuel Pump Pressure Test
Author: Bruce Iehl, Chanute Air Force Base

Lubrication/Oil System Components and Oil Flow 64e
Electronic Ignition/Components and Operation
Automatic Transmissions/Torque Converters
Automotive Oscilloscope
Author: Bill Kennedy, Chanute Air Force Base

D C Generator 64f
Author: Perry Main, Chanute Air Force Base

Introduction to Engine Fundamentals 64g
Introduction to Battery Ignition Systems
Valve Train Assembly
Author: John Predmore, Chanute Air Force Base

Soldering 64h
Author: Mel Marcus, Chanute Air Force Base

Ignition Game 64i
Author: K. J. Wigton, Chanute Air Force Base

Cooling Systems 64j
Author: J. Pelkey, Chanute Air Force Base

Prerequisites: Not specified
Intended Use: Courses for general and special purpose vehicle repairmen
Actual Use: Students in Vehicle Repair courses at Chanute Air Force Base
Lesson Evaluation: In preparation
Descriptive Literature: "Demonstration and Evaluation of the PLATO IV Computer-based Education System," First Annual Report on 'Computer-based Education for a Volunteer Armed Service Personnel Program' for U. S. Army Contract DAH C-15-73-C-0077 (August 1, 1972 - January 1, 1974)

65 VETERINARY MEDICINE

65a Anatomy
Veterinary Terminology
Authors: Richard Goodale, Elsbeth Holt, George Grimes, UIUC
Prerequisites: Preveterinary requirements
Intended Use: First year veterinary medical students and and preveterinary students
Actual Use: 126 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

65b Anatomical Terminology
Authors: Richard Goodale, Charles Koehn, Elsbeth Holt, George Grimes, UIUC
Prerequisites: Preveterinary requirements
Intended Use: First year veterinary medical students and preveterinary students
Actual Use: 51 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

65c Veterinary Cytology
No detailed information available

65d Principles of Circulation
Authors: A. H. Safanie, Rebecca Schmidt, Elsbeth Holt, UIUC
Prerequisites: Preveterinary requirements
Intended Use: First year veterinary medical students
Actual Use: 19 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

65e Histology of the Skin
Histology Superquiz
No detailed information available

65f Self Assessment Program in Histology
Authors: George Grimes, Elsbeth Holt, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: First and fourth year veterinary medical students
Actual Use: 21 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

65g Physiology
Bioelectric Properties of Cell Membranes
Authors: Richard Bubar, Cecily Resnick, UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second year veterinary medical students
Actual Use: 9 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

VETERINARY MEDICINE -continued-

Physiology -continued-

Electrocardiography 65h

Authors: David Smetzer, Charles Koehn, Richard Martin, UIUC
Prerequisites: Enrollment in second year veterinary medical curriculum
Intended Use: Second, third, fourth year veterinary medical students and for continuing education students
Actual Use: 14 student contact hours
Lesson Evaluation: Validity check (positive) by eight practicing veterinarians from various parts of the State of Illinois
Descriptive Literature: None

Phonocardiogram 65i

Authors: David Smetzer, Charles Koehn, UIUC
Demonstration Lesson

Hormonal Control of Carbohydrate and Lipid Metabolism 65j

Authors: Gary Jackson, Richard Trynda, Richard Tyler, UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second year veterinary medical students
Actual Use: 102 student contact hours
Lesson Evaluation: Available on request
Descriptive Literature: None

Essentials of Endocrinology 65k

No detailed information available

Review of Endocrinology 65l

Authors: Gary Jackson, Gerard Cavanaugh, Richard Tyler, UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second year veterinary medical students
Actual Use: 23 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Identification of Hormone Unknowns 65m

Authors: Gary Jackson, Richard Tyler, UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second year veterinary medical students
Actual Use: 96 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Microbiology

Laboratory Characteristics of Individual Bacteria 65n

Authors: Harry Rhoades, Laurence North, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: First and fourth year veterinary medical students
Actual Use: 23 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

VETERINARY MEDICINE -continued-

Microbiology -continued-

65o Identification of Bacteriological Unknowns
Authors: Harry Rhoades, George Grimes, Laurence North, Rebecca Schmidt, Mary Dulisch, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: First and fourth year and graduate veterinary medical students
Actual Use: 508 student contact hours
Lesson Evaluation: PLATO lesson provides the student with an efficient means (time and cost-wise) for learning process of identifying unknowns without risk of contamination.
Descriptive Literature: Grimes, G. M., H. E. Rhoades, F. M. Adams, and R. V. Schmidt, "Identification of Bacteriological Unknowns, A Computer-based Teaching Program," J. Med. Educ., 47, 289-292 (April, 1972)

65p Veterinary Mycology Program
Authors: Harry Rhoades, Charles Koehn, George Grimes, Mary Dulisch, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: First and fourth year and graduate veterinary medical students
Actual Use: 306 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

65q Identification of Viral Unknowns
Authors: Arden Killinger, Charles Koehn, Mary Dulisch, UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second year veterinary medical students
Actual Use: 83 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

65r Self-Assessment Program in Microbiology
Authors: George Grimes, Richard Tyler, Elsbeth Holt, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: First and fourth year veterinary medical students
Actual Use: 70 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

VETERINARY MEDICINE -continued-

Parasitology

Identifications Important in Veterinary Medicine 65s

Authors: Virginia Ivens, Richard Tyler, UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second year veterinary medical students
Actual Use: 83 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Quiz on Internal Parasites 65t

Authors: Richard Trynda (Charles Trayser, consultant), UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second and fourth year and graduate veterinary medical students
Actual Use: 58 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Protozoa of Importance in Veterinary Medicine 65u

No detailed information available

Pathology

Common Canine Tumors 65v

Author: John Silver, UIUC
Prerequisites: Enrollment in second year veterinary medicine curriculum
Intended Use: Second year veterinary medical students
Actual Use: 1 student contact hour
Lesson Evaluation: None
Descriptive Literature: Based on Moulton's Tumors in Domestic Animals

Diseases of Large and Small Animals

Veterinary Diagnosis Programs 65w

Authors: Thomas Burke, Eugene Musselman, George Grimes, Jon Friedman, UIUC

Bovine Disorders

Authors: Loyd Boley, Donald Lingard, George Grimes, UIUC

Canine Nervous Diseases

Authors: Richard Goodale, Arvle Marshall, Jon Friedman, UIUC

Cattle Digestive Disorders

Authors: Bruce Brodie, Eileen Sweeney, George Grimes, Jon Friedman, UIUC

Swine

Authors: Vaylord Ladwig, Eileen Sweeney, George Grimes, Jon Friedman, UIUC

VETERINARY MEDICINE -continued-

Diseases of Large and Small Animals -continued-

Equine

Authors: Ben Erwin, George Grimes, Eileen Sweeney, Jon Friedman, UIUC

Exotic Diseases

Authors: Dean Ferris, John Silver, UIUC

Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 367 student contact hours
Lesson Evaluation: Student feedback used for lesson improvement.
Descriptive Literature: None

Clinical and Labcratory Practice

65x Heart Valve Locations

Authors: Eugene Musselman, John Silver, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 53 student contact hours
Lesson Evaluation: Validity check (positive) by eight practicing veterinarians from various parts of the State of Illinois.
Descriptive Literature: None

65y Identification of Heart Sounds

Authors: Eugene Musselman, Cecily Resnick, Richard Trynda, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 221 student contact hours
Lesson Evaluation: Validity check (positive) by eight practicing veterinarians from various parts of the State of Illinois.
Descriptive Literature: None

65z Canine Cardiac Conditions

Authors: Eugene Musselman, Richard Trynda, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 11 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

VETERINARY MEDICINE -continued-

Clinical and Laboratory Practice -continued-

EKG Interpretation 65aa

No detailed information available

Canine Eye Diseases 65ab

Authors: Lloyd Helper, John Silver, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 5 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Canine Neurological Diagnosis 65ac

Authors: Alan Parker, Richard Trynda, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 132 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Clinical Pathology

Clinical Pathology Exercises on Anemia 65ad

Authors: Joseph Dorner, Richard Trynda, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 28 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Cases in Clinical Pathology 65ae

Authors: Joseph Dorner, Richard Trynda, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year and graduate veterinary medical students
Actual Use: 151 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

White Blood Cell Counts and Differentials: An Exercise in Evaluation 65af

Authors: Grace Long, Richard Trynda, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year veterinary medical students
Actual Use: 32 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

VETERINARY MEDICINE -continued-

65ag

Applied Anatomy
The Pupillary Light Reflex
Authors: Arvle Marshall, John Silver, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: First, third, fourth and graduate veterinary medical students
Actual Use: 101 student contact hours
Lesson Evaluation: Students who used PLATO had significantly higher test scores than students who used textbook.
Descriptive Literature: None

65ah

Radiology
Formulation of a Radiographic Technique Chart
Authors: Richard Park, Richard Keen, Rebecca Schmidt, Richard Trynda, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third year veterinary medical students
Actual Use: 51 student contact hours
Lesson Evaluation: None
Descriptive Literature: None

Diagnosis of Canine Hip Displasia
No detailed information available

65ai

Nutrition
Nutritional Problems
Authors: Fredric Owens, Alfred Sherer, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: First year veterinary medical students
Actual Use: 189 student contact hours
Lesson Evaluation: Attitude survey shows 81% of the students thought that the problems were helpful.
Descriptive Literature: None

65aj

Pearson Square
Authors: Fredric Owens, Ralph McQueen, Alfred Sherer, UIUC
Prerequisites: Enrollment in first year veterinary medicine curriculum
Intended Use: Any veterinary medical students
Actual Use: None
Lesson Evaluation: None
Descriptive Literature: None

VETERINARY MEDICINE -continued-

Diseases of Poultry 65ak

Poultry Diseases

Authors: Lyle Hanson, Deoki Tripathy, James Sanner, Laurence North, UIUC

Prerequisites: Enrollment in fourth year veterinary medicine curriculum

Intended Use: Fourth year and graduate veterinary medical students

Actual Use: 245 student contact hours

Lesson Evaluation: None

Descriptive Literature: None

Veterinary Economics and Business Management

Financial Analysis of a Veterinary Practice (Case Studies) 65al

Authors: John Judy, Richard Tyler, Laurence North, UIUC

Prerequisites: Enrollment in fourth year veterinary medicine curriculum

Intended Use: Fourth year and graduate veterinary medical students

Actual Use: 250 student contact hours

Lesson Evaluation: None

Descriptive Literature: None

Vetmed Calculator

Author: John Silver, UIUC

Prerequisites: None

Intended Use: Reference lesson

Actual Use: 258 student contact hours

Lesson Evaluation: None

Descriptive Literature: None

Food Hygiene and Public Health 65am

Antemortem Inspection Procedures

Postmortem Inspection Procedures

Test on Antemortem and Postmortem Inspection

Simulated Antemortem and Postmortem Inspection Procedures

Authors: George Grimes, George Woods, Elsbeth Holt, UIUC

Prerequisites: Enrollment in fourth year veterinary medicine curriculum

Intended Use: Fourth year and graduate veterinary medical students

Actual Use: 211 student contact hours

Lesson Evaluation: Students who used PLATO performed as well on the test as students who used handout materials.

Descriptive Literature: None

VETERINARY MEDICINE -continued-

65an

Food Hygiene and Public Health
Veterinary Public Health Aspects of Milk and Dairy Products
Pasteurization of Milk and Dairy Products
Food - borne Disease Investigation

Authors: George Grimes, George Woods, Elsbeth Holt, UIUC
Prerequisites: Enrollment in fourth year veterinary medicine curriculum
Intended Use: Fourth year and graduate veterinary medical students
Actual Use: 183 student contact hours
Lesson Evaluation: The test scores of students who used PLATO were significantly higher than the test scores of students who attended classroom lectures only.
Descriptive Literature: None

65ao

Zoonotic Diseases

Authors: George Grimes, Elsbeth Holt, UIUC
Prerequisites: Enrollment in third year veterinary medicine curriculum
Intended Use: Third and fourth year veterinary medical students
Actual Use: None
Lesson Evaluation: None
Descriptive Literature: None

Section IV

PLATO GAMES

The following pages provide a brief glimpse at another example of the versatile PLATO system -- its entry into the world of entertainment. Webster's definition of a game is an "amusement or diversion." A second definition is "a physical or mental competition conducted according to rules with the participants in direct opposition to each other." PLATO offers mental diversion, competition, and challenge in its games played for pure amusement and in its games incorporated by teachers in their instructional sequences.

The games listed in this section have been grouped in arbitrary categories. Many games could fit as well in one list as another, and most are really "simulations." The lists do not represent all the games on the system because most of the unfinished games have not been included, and undoubtedly there are games which have been missed because of being well hidden in the lesson files. It is worthwhile to note that a serious interest in well-programmed PLATO games is currently in evidence in a PLATO program on gaming which is being developed by some of the more prolific game writers.

The graphical capability of the PLATO display makes possible the representation of game boards, counters, animated figures, simulations, and unusual visual effects to enhance the interest of game participants. If the time comes when a PLATO terminal is as common a household appliance as a color television set, PLATO will provide a never-ending source of engrossing activity for every member of the family from two to ninety years of age.

"INSTRUCTIONAL" GAMES

Some of the authors have indicated the following lessons as "instructional games:"

Aeronautical and Astronautical Engineering
- Aerospace Engineering Games (Range and Takeoff Performance of Light Plane, Design of VTOL Airplane, Spacecraft Launch, Lunar Landing)

Business Administration
- Inventory Theory

Economics
- Theory of Equilibrium in an Exchange Economy

English
- Crossword Puzzle on Homonyms

French
- Twenty Questions

Machinist Training
- Ordnance - Sergeant Game

Mathematics - Elementary
- Arithmetic Games (Chase, Cross Number, Darts, Guess My Number, Hexapawn, Hop, Pentagon, Pico Fomi, Probability, Target Number, Tic Tac Number, How the West One+Three×Four, etc.)

Music
- Music Baseball Game
- Music 5×7

Physics
- Maxwell's Demon
- Physics Games (Lunar Landing, Target Game, Mountain Game, Orbits Game)

Political Science
- Congressional Candidates
- Voting Behavior and Concepts
- Teacher Union Bargaining

Reading
- Elementary Reading Games (Concentration, Construct a Sentence, etc.)

Speech and Hearing Science
- Phonetics Crossword Puzzle

Urban Planning
- Social Policy Impact Model

"INSTRUCTIONAL" GAMES -continued-

Vehicular Training
Ignition Game

Veterinary Medicine
Veterinary Terminology
Veterinary Public Health Aspects of Milk and Dairy Products

BOARD GAMES

Backgammon	The game of backgammon with moves of counters on a backgammon board according to computer-thrown dice. Steve R. Keefer, Purdue University at Fort Wayne
Bingo	The game of bingo with hypothetical cash receipts. Marshall Midden, K. Northrup, UIUC
Checkers	The game of checkers between two players at one terminal, one player against himself, or one player with the computer as his opponent. Richard W. Blomme, UIUC
Chess	The game of chess between two players at one terminal, at different terminals, or between a player and random moves of the computer. Jim Thomasson, movemaker and checker UIUC Gordon Weast, character set redesigner UIUC Richard W. Blomme, owner and originator UIUC
Chess 3.5	Higher level game of chess. Play may be monitored by spectators at other terminals. Steve Freyder, Mark Rustad, Marshall Midden, TUTOR interface, UIUC David J. Slate, Larry Atkin, chess program, Northwestern University
Go	The game of go in which two players attempt to place counters (called "stones") on a board in such a way as to surround and capture each other. Richard W. Blomme, UIUC
Knight's Tour	One chess knight tours every square of a chess board from a random starting position. Rob Walton, UIUC

BOARD GAMES -continued-

Tic Tac Toe	The game of tic tac toe offering five intelligence levels of play which adjust to opponent's playing ability. Joe Vojacek, Malcolm X College Also versions of Tic Tac Toe by Richard Blomme, UIUC, Michael Walker, UIUC, and the CERL Elementary Mathematics Group, UIUC.
4-D Tic Tac Toe	Tic Tac Toe in four dimensions. Brian Dantzig, M. Travers, Mr. Brown, Northwestern University

CARD GAMES

Add-to-13 Solitaire	Triangular card layout in which cards are removed if their values add to thirteen. Richard W. Blomme, UIUC
Blackjack	The card game of "twenty-one." Corey S. Cole, U. of Calif. at Santa Barbara
Bridge	An introduction to the game of bridge and point count bidding. Richard W. Blomme, UIUC
Contract	Contract bridge played between terminals and/or the computer. David Wooley, Martin Wolff, UIUC
Four Suit Stack Solitaire	Deck of cards dealt all facing up in four rows of thirteen each. Cards are moved to form piles of sorted suits in ascending order from one (ace) to thirteen (king). Richard W. Blomme, UIUC
Perfect PLATO Poker Parlor	Game of poker. Brian Dantzig, M. Travers, Mr. Brown, Northwestern University
Yahtzee	Card game with dice. R.M. Schell, UIUC

CHANCE GAMES

Slot Machine	The 'one-armed bandit,' computer-controlled. David Dennis, Jon Pines, Urbana, Illinois
Solitaire Dice	Computer-controlled dice game. R.M. Schell, UIUC

LETTER AND WORD GAMES

Concentration	Visual memory game. CERL Elementary Reading Group, UIUC
Hangman	Guess the letters in a word before a "hangman" stick figure can be constructed. C. Scotese, P. Rowell, B. Shankman, UICC
Perquacky	Word formation from randomly presented letters with time limit. Pam Curulewski, Don Jackson, Northwestern University
Scrabble	The crossword game of scrabble. Silas Warner, Indiana University at Bloomington

MAZE TRACING OR PATH FINDING

Magic Squares	Puzzle in which fifteen numbered squares in a 4 × 4 configuration must be shifted in a plane to match the solution given in the least possible time. Peggy McClintock, U.S. Army Signal Center, Fort Monmouth, N.J.
Maze	Player works his way through a complex randomly designed maze. Silas Warner, Indiana University at Bloomington
Mazewar	A race between players at two terminals to move a "man" from his home box through a maze to his opponent's home box. Louis Bloomfield, Urbana, Illinois

MAZE TRACING OR PATH FINDING -continued-

Minefield	Player maneuvers submarine through a minefield. John Hertig, Parkland College, and B. Shankman, UIUC
Sharp	Complex puzzle in which ten pieces of various sizes, placed in a square configuration, are moved around in a plane in the least possible moves to position one of the pieces at the bottom. Jerry L. Cohen, R. Sharp, UIUC

NUMBER GAMES

Bin-O-Battle	Timed conversion of binary to decimal numbers. Junior Systems Programmers, CERL, UIUC
Factron	Timed factoring of simple quadratic polynomials. Junior Systems Programmers, CERL, UIUC
Guesser	A "guess my number" game - guessing a four-digit number by logical reasoning. Six levels of difficulty. Richard Fisher, Northwestern University
Moonbattle	Arithmabattle game of arithmetic facts. Two-terminal competition solving problems of addition, subtraction or multiplication. Louis Bloomfield, Urbana, Illinois
How the West was One+ Three×Four	Computer adaptation of "Chutes and Ladders" giving number operation practice. Bonnie Anderson, UIUC

QUESTIONS AND ANSWERS

Jeopardy	Quiz game similar to game of same name seen on television in which questions in stated categories must be formulated for given answers. Rob Walton, UIUC

RACES

Race	Horse racing game, fifteen race limit, $1000 available for betting. David Wooley, UIUC
Race Tangle	Automobile race with direction as well as acceleration under player's control. More complex track than in Racetrack, but similar game. Junior Systems Programmers, UIUC
Racetrack	Simulation of mathematical and physical factors involved in driving a car (discrete simulation-time proceeds in finite intervals). J. Nievergelt, M. Kaufman, and others, UIUC
Regatta	Simulation of sailing race. Four players can play at once at same terminal. Object of the game is to cross the finish line first after rounding three buoys in numerical order. J. Nievergelt, M. Kaufman, and others, UIUC
Typing Letters	Timed typing of alphabet. Junior Systems Programmers, UIUC
Typing Words	Timed typing of words. Junior Systems Programmers, UIUC

STRATEGY AND CONFLICT

Conquest	Game of interplanetary strategy in peace and war. John Daleske, Iowa State University Silas Warner, Indiana University at Bloomington
Diplomacy	War game played on world map by challenging other national forces. Martin Wolff and others, UIUC
Empire	Strategies in building an empire. Silas Warner, Indiana University at Bloomington John Daleske, Iowa State University
Empires	Strategic and tactical simulation of battles. Silas Warner, Indiana University at Bloomington John Daleske, Iowa State University

TARGET SHOOTING

Antisubmarine Warfare Exercise	Firing depth charges at a submarine. D.R. Weller, Naval Training Equipment Center, Orlando, Florida
Bombing Run	Bombing practice by varying on each run the rate of climb or descent of a bomber flying with constant height and speed. Silas Warner, Indiana University at Bloomington
Dogfight	Interactive inter-terminal air warfare game. John Hertig, Parkland College and George Frye, UIUC
Fishwar	Inter-terminal game; can be team game. Challenge and shoot type. Todd Little, Mike Berger, George Frye, UIUC
Foxhunt	Player and opponent hunt a fox. Winner either shoots his opponent or the fox. Alexander Dimetrief, Urbana, Illinois
Moonwar	Shooting an opponent with a laser beam from behind mountain obstacles. Louis Bloomfield, Urbana, Illinois
Orbitwar	Inter-terminal orbit war game in which rocket-ships battle each other by maneuvering positions. Silas Warner, Indiana University at Bloomington
Rifle Range	Rifle shooting practice allowing adjustment of gun sight to make proper allowance for wind drift. Silas Warner, Indiana University at Bloomington
RSWar	Well-documented program showing the way to write a "shooting" type game in TUTOR. Bruce Parrello, UIUC
Spasim	Physical Vector simulation of space travel; conflict between spaceships and battleships. Jim Bowery, UIUC

TARGET SHOOTING -continued-

Spacewar	Battle between two spaceships trying to shoot each other down with limits on amount of fuel available to each ship. Inter-terminal game. Richard W. Blomme, UIUC
Subwar	Single terminal game with nuclear submarine or battleship and areas of land and sea as hazards. David Dennis, Jon Pines, Urbana, Illinois
Tactics	Tactical gaming with submarine captain having to search and destroy all enemy fleets and sink maximum tonnage. John Daleske, Iowa State University
Targon	Target tracing game in which shots are taken at a moving target. Silas Warner, Indiana University at Bloomington
Turkey Shoot	Target shooting game in which three pilgrims, controlled by the player, attempt to down a turkey. Silas Warner, Indiana University at Bloomington

VARIOUS OTHER SIMULATIONS

Air Race	A simulated flying lesson in which the player operates the controls of an airplane. Silas Warner, Indiana University at Bloomington
Baseball	Team of PLATOIANS plays a game of baseball against any of four real-life teams. Alexander Dimetrief, Daniel Plager, Urbana, Illinois
Bus Line	Simulation of planning and running a link in the transit system of Platoland. Also simulation of operation of a dispatcher for a "dial-a-bus" system. Silas Warner, Indiana University at Bloomington

VARIOUS OTHER SIMULATIONS -continued-

Galaxy	Social/political simulation for the far future. Gary Michael, UIUC
Nova	Three-dimensional universe simulator. Al McNeil, Pete Rowell, UICC
Picto	Three simple programming language games for children. Paul Tenczar, Larry White, UIUC
Ping Pong	Game of ping pong. John Daleske, Iowa State University David Dennis, Jon Pines, Urbana, Illinois
Stocks and Bonds	Computerized version of the 3M Company's stock market game. Scott Woodard, UIUC
Traffic Simulation	Simulation of problem of finding ideal settings for traffic lights at an intersection by graphic "Monte-Carlo" techniques. Ron Ozarka, John D. Eisenberg, UIUC
Turtle	Programming exercise to control a machine (turtle) so that it will move and draw pictures. Rob Walton, UIUC